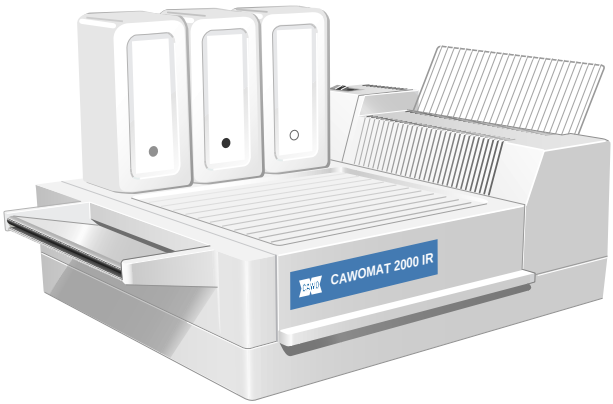
Cawomat 2000 IR

Reference manual



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Introducing the Cawomat 2000 IR

Welcome to the Cawomat 2000 IR

The Cawomat 2000 IR is a most up-to-date table-top processor designed to handle all types of medical X-Ray film suitable for rapid processing. All operations are programmed and each step takes place automatically.
The complete throughput, drying included, takes only 125 seconds.

The Cawomat 2000 IR offers the following features:

- Automatic film processing.

  The Cawomat 2000 IR handles film from 100 x 100 mm (4” x 4”) up to 350 mm (14”) wide and 1200 mm (51”) long.

- Easy to handle, compact in size, light in weight.

- No installation cost:
  - Just plug it in.
  - No extra plumbing: no fixed water supply or water-drainage system required.

- Low operation cost:
  - Economical standby mode.
  - No waste of water.
  - Precise and automatic control of developer temperature.
  - Precise and automatic control of chemical replenishment. The film scanner registers exactly the amount of solutions needed to process a specific film size.

- Easy maintenance and cleaning:

  The simple construction of the Cawomat 2000 IR allows easy access to all parts needing cleaning or replacement.

About this manual

This manual is your reference guide to the Cawomat 2000 IR.
It has a task-oriented, modular structure and describes in detail all instructions for setup, operation and maintenance.

The reference manual consists of the following chapters:

- Chapter 1, ‘Installation of the Cawomat 2000 IR’, offers a step by step description of the unpacking and installation procedure for the Cawomat 2000 IR.
- Chapter 2, ‘Getting started with the Cawomat 2000 IR’, introduces the Cawomat 2000 IR to the user and explains some key concepts.
- Chapter 3, ‘Cleaning the Cawomat 2000 IR’, guides you through cleaning tasks which require no special skills, tools or training.
- Chapter 4, ‘Troubleshooting’, serves as a guide to recognize, identify and solve possible errors and problems.
- Chapter 5, ‘Advanced service: instructions for skilled personnel’, describes maintenance and repair procedures which may be carried out by skilled service personnel only.
- Appendix A, ‘Equipment information sheet’.
- Appendix B, ‘Exploded views and parts list’.
- Appendix C, ‘Index’, lists the main topics in alphabetical order to help you find the appropriate procedure for any task.

❖ *The present instruction manual is focussed on the installation, use and maintenance procedures of the Cawomat 2000 IR processor, with a minimum of technical assistance. If you encounter difficulties with the installation or operation instructions, or if the processor fails to operate as specified, call your local service organization.*

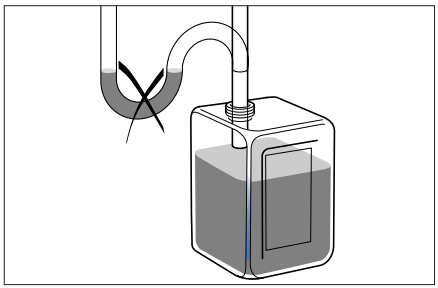
Safety precautions

General safety instructions

- The Cawomat 2000 IR was designed for processing medical X-ray films and should only be used for this purpose.
- The processor may only be operated by qualified staff.
- Make sure that only authorized personnel has access to the processor.
- Only trained and authorized service personnel can make repairs or changes to the processor.
- If there is visible damage to the machine casing, the processor should not be started or used.
- Do not override or disconnect the integrated safety features.
- Disconnect the processor from the mains before performing any maintenance activities.
- Like all technical devices, the processor must be operated, cared for and serviced correctly, as described in the documentation provided with the machine.
- If the processor is not operated correctly or if you do not have it serviced correctly, CAWO is not liable for resulting disturbances, damages or injuries.
- When installing the processor, care must be taken to ensure that there is either a mains plug or an all-cable disconnecting device in the internal installation fitted near the processor and that it is easily accessible.
- If connections with other components or assemblies are made, CAWO can guarantee safety only for combinations which are approved by CAWO.
- If you notice conspicuous smoke or noise, disconnect the processor immediately.
- An earth leakage circuit breaker (I = < 30 mA) must be built into the electric circuit.

Special instructions for the handling of chemicals

- When handling chemicals, you must observe safety and environmental regulations as well as the operating and warning instructions accompanying the chemicals.
- Wear stipulated protective clothing and safety goggles.
- When disposing of chemicals and waste water, you must comply with the local regulations concerning waste water and environmental protection.
- If chemicals get into your eyes, immediately rinse your eyes with cold water and consult a physician.
- Do not inhale vapor from chemicals. Make sure that there is sufficient ventilation where the processor is installed, i.e. air exchange that is at least ten times the space volume per hour.
- Always comply with the installation instructions.
- Regularly check all connections to the processor for tightness.
- If liquid gets into the inside of the processor (due to spills), disconnect the processor from the mains immediately and have the device cleaned thoroughly by service personnel.



Collect spent chemicals in separate containers and suspend hose pipes at a sloping angle without any kinks.

Chapter 1

Installation of the Cawomat 2000 IR

This chapter offers a step by step description of the installation and unpacking procedure for the Cawomat 2000 IR.

- ☐ Basic installation requirements
- ☐ Installation

Basic installation requirements

Before unpacking the unit, make sure you have a darkroom with an adequate working area and the basic installation requirements, as listed below. Complete specifications are provided in Appendix A.

Installation requirements

- Power requirement

  Prior to connecting the processor to the mains, check whether the specifications on the data plate match your local power supply (120V / 230V). The processor must not be run without earth protection. An earthed power outlet protected by a fuse (15A / 16A) is required. An earth leakage breaker (I_N = < 30 mA) must be built into the electric circuit.

- Water requirement

  The Cawomat 2000 IR processor does not need a separate water connection. Water is supplied by a water replenishment bottle, and should be at normal room temperature (15°C to 25°C / 59°F to 77°F). A convenient sink and water hose is recommended for filling the water replenishing bottle, for mixing the chemicals and for cleaning the processor.
  An optional fixed water connection can be ordered though, if continuous water supply is wanted. Refer to page 87 for the appropriate order code.

- Disposal of waste chemicals and waste water

  It is the purchaser's responsibility to conform to local rules and regulations regarding the disposal of waste chemicals. Care should be taken when handling chemicals at all times. Please observe the hazard instructions provided on the chemical labels.

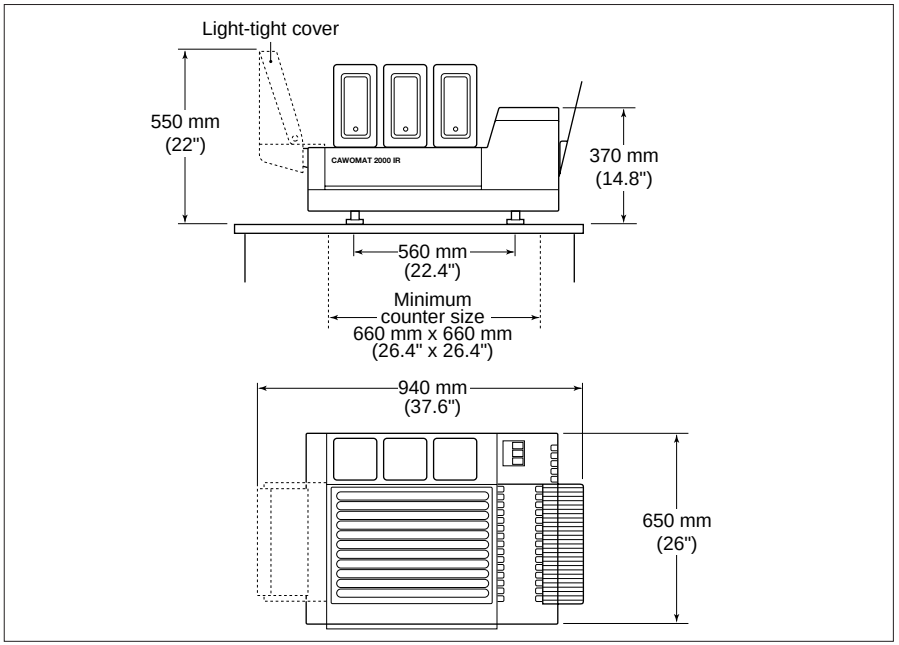
- Ventilation requirement

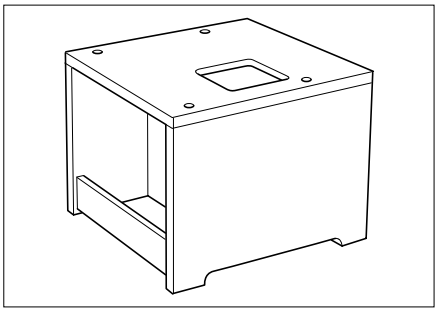
  The Cawomat 2000 IR processor does not require a separate exhaust system and does not produce excessive external heat. The processor will operate properly at a room temperature between 15°C and 30°C / 59°F and 86°F, and at a relative humidity between 30% and 80%.

Working area requirements

The Cawomat 2000 IR is designed to be installed in a darkroom. Consult the medical imaging film company for recommended darkroom lighting conditions.

The counter or support upon which the processor is to be set up must have a minimum surface of 660 x 660 mm. A larger working surface is recommended for safety purposes. The processor should be accessible from all sides if possible, but a minimum clearance must be provided. Consult the diagram:





The Cawomat 2000 IR Support Table is an option meeting exactly all requirements: it features appropriate support leg holders and a hole to lead through the drain hoses to the waste bottles which can be placed in a safe location underneath the table.

❖ *Refer to Appendix A for order codes and specifications.*

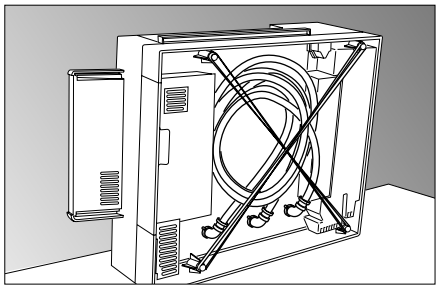
Installation

❖ *Refer to page 21 for a diagram of the main components.*

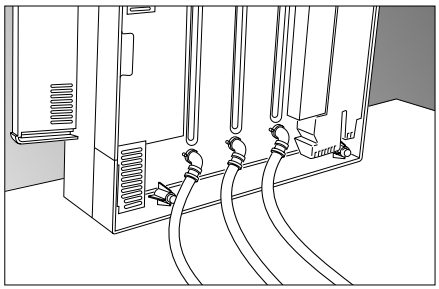
Arranging the drain hoses

1 Remove the rubber bands.

Lift the processor and set it down on its rear end with two people. Do not use the legs as a pivot point. The drain hoses are held in place by rubber bands.



2 Withdraw and unroll the three drain hoses.

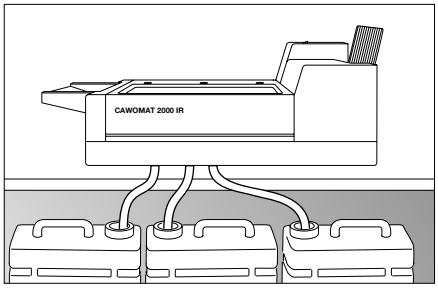


If the processor has been placed as shown above, you see from the left to the right: the developer hose, the fixer hose and the wash-water hose.

3 Lower the processor back into operating position with two people.

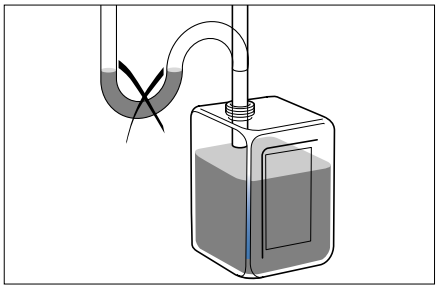
Do not use the legs as a pivot point.

4 Arrange the hoses into their appropriate waste bottles.



Waste solutions must be drained preferably into three separate waste bottles. The developer hose and the waste-water hose can be put together into one bottle. However, the fixer hose should be put into a second waste bottle.

5 Correct the hose length.

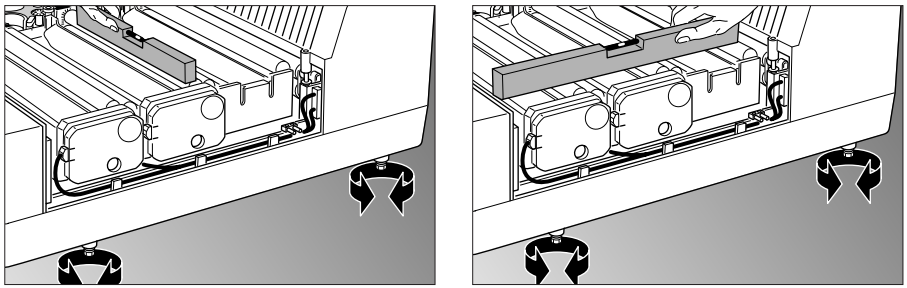


If the processor is to be installed on a counter with the waste bottles stored beneath, holes should be cut into the counter top for the drain hoses to pass through.

Levelling the processor

The processor must be exactly level for a reliable operation and a proper replenishment of the chemicals. Levelling screws in the legs are provided to enable a proper adjustment. Use a levelling instrument to achieve satisfactory results.

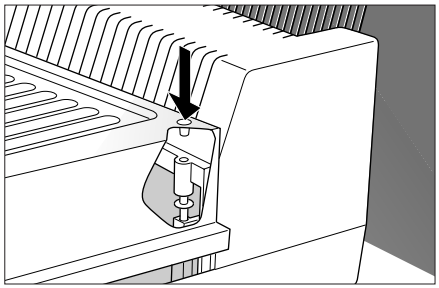
1 Level the machine by means of the adjustable legs.



Level the machine front-to-back and left-to-right, preferably on the tank rollers as shown in the figures above.

- Turn the levelling screws clockwise to raise the processor and counter-clockwise to lower the processor.
- Turning the screws is made easier by lifting slightly the appropriate corner.

2 Now you can replace the processor cover.

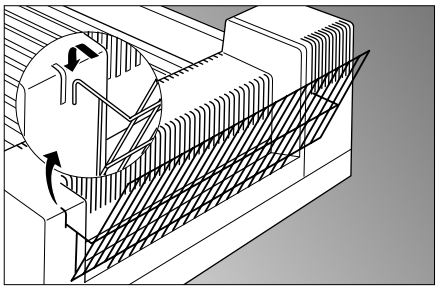


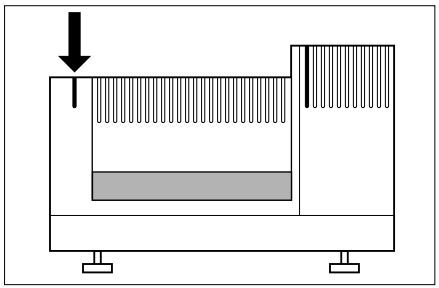
Make sure that the interlock pin, marked on the processor cover with a white dot, is properly engaged with the interlock switch. If not, the processor will fail to work.

Fitting the exit tray

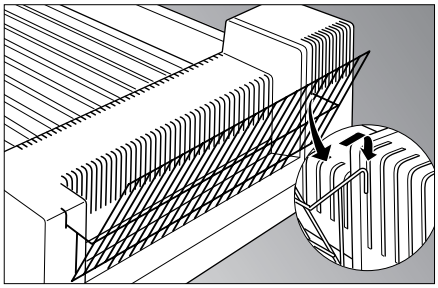
1 If not done already, remove the exit tray from its polyfoam wrapping.

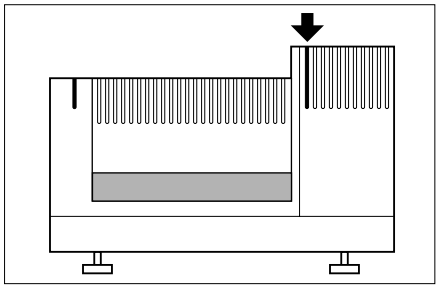
2 Engage the left hook of the exit tray in the slot on the left of the dryer cover.





3 Engage the right hook of the exit tray in the leftmost ventilation slot on the right side of the dryer cover.





Inserting the replenishment bottles

A set of replenishment bottles was packaged in the accessories box that also contained this manual. Supplementary sets of 5 l or 2.5 l replenishment bottles can be ordered to assure quick changing of the chemicals. Refer to the Appendix A ‘Equipment information sheet’ for the appropriate order codes.

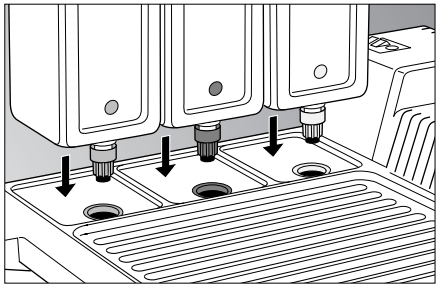
1 Make sure the replenishment bottles have the correct valves attached.

The valves are color coded to match them to their corresponding bottles to avoid contamination of the chemicals. Refer to the table on page 36 for the appropriate color codes.

❖ Never interchange the valves!

2 Insert the empty replenishment bottles into the corresponding receptacles.

❖ *The replenishment bottles should be inserted emptily at this time. The mixing and filling procedure for chemicals can be found in chapter 2, ‘Getting started with the Cawomat 2000 IR’.*



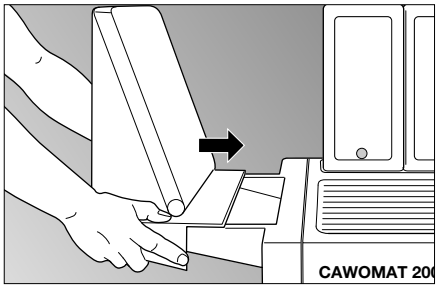
Installing the light-tight cover

The light-tight cover is an optional accessory making it possible to leave the dark-room safely once processing of films has started.

❖ *Refer to Appendix A for order codes and specifications.*

1 Remove the light-tight cover accessory from its packing.

2 Slide the light-tight cover onto the feed tray and press it firmly into position.



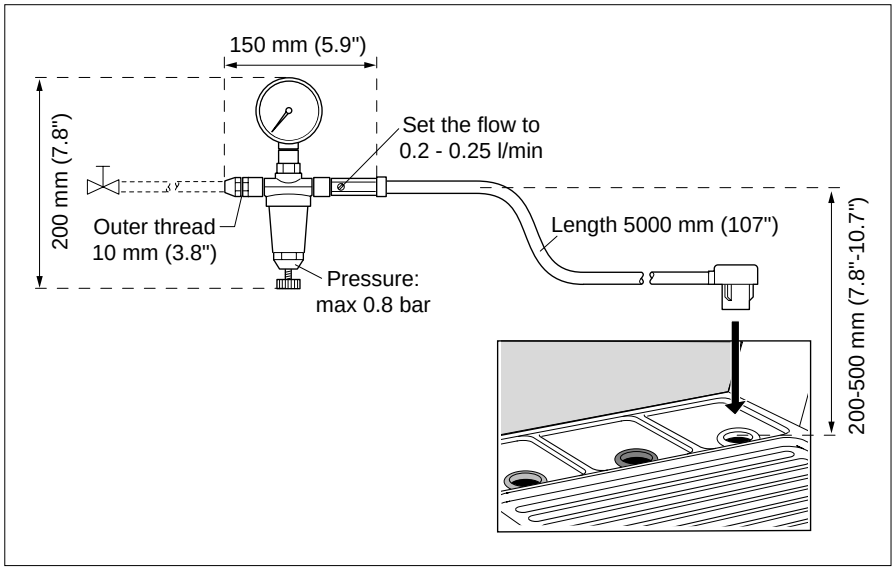
Installing a fixed water connection

For normal operation the Cawomat 2000 IR processor does not need a separate water connection. However, it is possible to install a fixed water connection if continuous water supply is wanted. The fixed water connection accessory can be ordered as an option.

❖ *Refer to Appendix A for order codes and specifications.*

1 Remove the fixed water connection accessory from its packing.

2 Install the fixed water connection accessory as shown in the diagram below.



The pressure reducing valve is connected to the water source (1.805 cm / 3/4" pipe with shut-off valve). The connection is a male union with a 0.953 / 3/8" O.D. thread. Set the pressure reducing valve to the values as indicated in the diagram.

3 Remove the water replenishment bottle and insert the hose connector into the water receptacle, marked by a white ring.

Water temperature should be between 5°C and 25°C (40°F and 70°F).

❖ *The water line valve should be shut off at the end of a work period. You must have a fixed floor drain for waste water when using the fixed water connection accessory.*

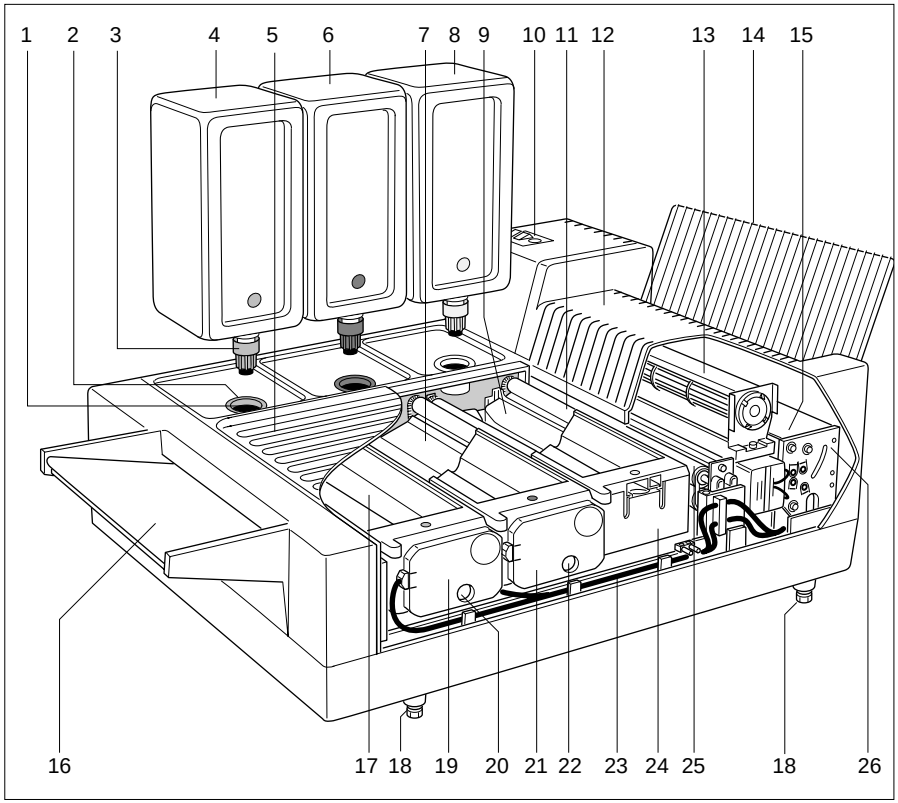
Chapter 2

Getting Started with the Cawomat 2000 IR

This chapter introduces the Cawomat 2000 IR to the user and explains some key concepts.

- ☐ Main components
- ☐ Control panel
- ☐ Preparing the chemicals
- ☐ Checking the replenishment rates
- ☐ Replenishment rate adjustment
- ☐ Using the Cawomat 2000 IR

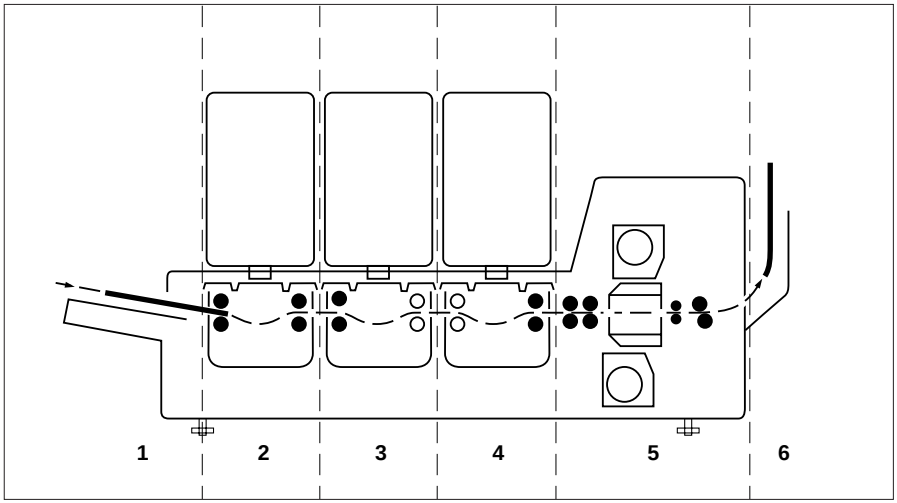
Main components



1. Developer bottle receptacle
2. Developer ring (red)
3. Developer bottle valve (red)
4. Developer replenishment bottle
5. Processor cover
6. Fixer replenishment bottle
7. Fixer tank guide plate
8. Water replenishment bottle
9. Wash-water tank guide plate
10. Control panel
11. Film transport roller
12. Dryer assembly cover
13. Dryer fan & heater compartment
14. Exit tray
15. Dryer transport roller cover
16. Feed tray
17. Developer tank cover
18. Adjustable leg
19. Developer heater
20. Developer thermal cutout
21. Fixer heater
22. Fixer thermal cutout
23. Heater cables
24. Wash-water tank
25. Squeegee roller assembly
26. Dryer transport roller assembly

Functional Diagram

Exposed film is inserted directly into the feed slot at the left side of the processor. The film passes the film scanner regulating the replenishment and dryer systems, and then passes through the developer, the fixer and the wash-water tanks. After drying, the film leaves the dryer section and is deposited into the exit tray.



1. Feed section
2. Developer section
3. Fixer section
4. Wash-water section
5. Dryer section
6. Exit section

Operation

When the power switch is turned ON, the drive motor, the pump motor, the tank heaters and the dryer fans start to operate.

After about 7 minutes, the chemical solutions are heated up sufficiently for the Cawomat 2000 IR to become operational.

When a film is fed into the processor, it is detected by the film scanner, a pair of magnetic rollers. The film scanner also measures the length of the film to determine the replenishment rate, being different for each separate tank. At the same time, the replenishment system, the dryer heaters and the fan are activated.

As long as film feed is detected, the replenishment pumps operate at double speed. This increased circulation causes the contents of the developer tank, fixer tank and wash-water tank to rise in their pump tubes and flow into the drains. An appropriate amount of fresh solution and wash water is replenished automatically from the supply.

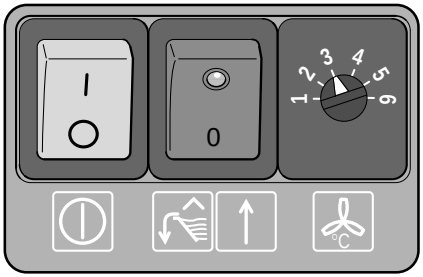
When the end of the film is detected and the film scanner rollers are no longer turning, the following occurs:

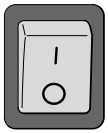
- The indicator light remains on for about 15 seconds. When it turns off, another film can be fed into the processor.
- Provided that no additional film is inserted, the circulation rate is slowed down again. 40 seconds after the last film exits the dryer, the infrared dryer heaters turn off, and after an additional 40 seconds, the lower fan turns off. The upper fan works continuously.

As long as the machine is left on, it remains in standby mode but uses neither chemicals nor water.

Control panel

The control panel contains the power switch, the manual replenishment key with the film feed light, and the dryer temperature step-switch.





Position ‘I’ of the red power switch turns the processor ON. Depending on the room temperature, solutions reach their proper operating temperature within 7 minutes.
Position ‘0’ switches the processor OFF.

- *Caution: the processor should only be switched on with full tanks.*
- *Caution: the processor should never be switched off during film transport.*

The manual replenishment key allows the user to initiate an additional replenishment cycle, during which a red indicator light is illuminated.

The manual replenishment key should be pressed if the processor has been idle for more than a day. Film may be inserted into the processor when the additional replenishment cycle is completed, which is indicated by the red light going OFF.

The light is also illuminated during film feed.

The 6 step-switch controls the dryer temperature. This enables the dryer temperature to be adjusted to particular environment conditions (humidity and ambient temperature). The normal setting is ‘3’.

Preparing the chemicals

If the replenishment bottles are to be filled with chemicals for the first time, be sure to read the following instructions:

- Prior to filling the tanks for the first time, it is recommended that they be removed from the processor and rinsed with tap water. The standard cleaning procedure as described in chapter 3, 'Cleaning the Cawomat 2000 IR' can be followed, except that there are no chemicals yet to be drained.
- To save chemicals, check and adjust the replenishment rates using water in three spare replenishment bottles (which can be ordered as an option). If the replenishment rates are satisfactory, you can fill the genuine set of replenishment bottles with chemicals. The procedures for checking and adjusting the replenishment rates can be found further on in this chapter.

  ❖ *The chemical products can cause skin irritations with people who are sensitive to them. It is therefore advisable to wear rubber gloves and to wash your hands thoroughly afterwards.*

  ❖ *Always prepare the solutions in accordance with the directions from your supplier. Read the accompanying leaflet and/or the instructions on the bottle, to check for congruity with the procedures below.*

Preparing the developer solution Agfa G153

Agfa G153 should be used to prepare the developer solution. A unit package contains 12 sets of 2 concentrated solutions (parts A and B), each set being used for making up 2.5 litres of working solution (if you want to make up 5 litres of working solution, double the values for water and chemicals):

– part A contains 1000 ml of concentrated developer.

– part B contains 250 ml of concentrated hardener.

1 Fill up the **red** marked replenishment bottle with 1.25 litres of water (15°C - 40°C).

2 Add part A and mix by stirring the bottle a few moments.

❖ *Never mix the concentrated solutions A and B. Part A is first to be thoroughly mixed with the water before part B can be added.*

3 Add part B, screw the **red** valve on the bottle and thoroughly mix once more.

Preparing fixer solution Agfa G353

A unit package of Agfa G353 contains 18 sets of 2 concentrated solutions (parts A and B), each set being used for making up 2.5 litres of fixer solution (if you want to make up 5 litres of working solution, double the values for water and chemicals in the procedure below):

- part A contains 500 ml of concentrated fixer,
- part B contains 250 ml of concentrated hardener.

1 Fill up the **blue** marked replenishment bottle with 1.75 litres of water (10°C-30°C).

2 Add part A and mix by stirring the bottle a few moments.

❖ *Never mix the concentrated solutions A and B. Part A is first to be thoroughly mixed with the water before part B may be added.*

Preparing fixer solution Agfa G354

A unit package of Agfa G354 contains 18 units of 1000 ml chemical, each for making up 2.5 litres of fixer solution (if you want to make up 5 litres of working solution, double the values for water and chemicals in the procedure below):

1 Fill up the **blue** marked replenishment bottle with 1.5 litres of water (10°C-30°C).

2 Add the chemical and mix by stirring the bottle a few moments.

Inserting the replenishment bottles

❖ *A full replenishment bottle of each solution should always be kept in readiness to ensure quick replacement. The solutions can be preserved for about one week in a full and closed replenishment bottle. Always keep in mind the preservation instructions indicated on the bottles.*

Place the replenishment bottles in the receptacles, taking the color codes into account (red for developer, blue for fixer, white for water). When the replenishment bottles are inserted into the processor, the tanks will automatically be filled to the bottom edge of the bottle valves.

Checking the replenishment rates

The Cawomat 2000 IR processor features an automatic replenishment system, in which the replenishment cycle is controlled by the length of the film. However, the width of the film will affect the replenishment rates. By watching the liquid levels in the replenishment bottles you can easily check and - if necessary - adjust the replenishment rates.

❖ *Each of the three replenishment bottles has its own replenishment rate.*

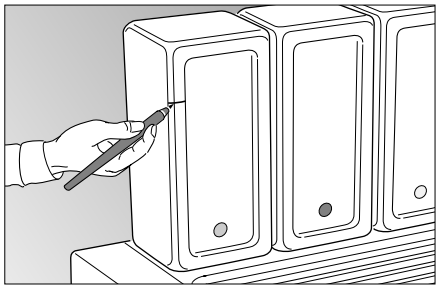
Checking the replenishment rate is required in the following circumstances:

- After installation of the machine.
- After replacement of the pumps.
- If the standard film size is altered. The replenishment pumps have been factory-set for average replenishment rates based on processing 240 x 300 mm films. If you will be processing either mainly larger or smaller sizes, it will be necessary to adjust the pumps.

1 Insert full replenishment bottles.

2 Switch the processor on and wait several minutes until the tanks have completely filled.

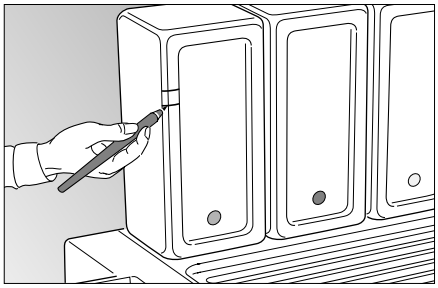
3 Carefully indicate the liquid level on each bottle, using a marker.



4 Depress the manual replenishment key to start an additional replenishment cycle of about 3 minutes.

The indicator light turns on.

5 After completion, mark the new liquid level on each bottle and measure the level difference from the first mark to the second.



6 Compare the rates with those in the table below. If you have an incorrect replenishment value for one of the replenishment bottles, the rate should be adjusted, as described on the next pages.

The table indicates the amount of liquids (± 15% tolerance) flowing into the tanks during a replenishment period of approximately 3 minutes.

Film sizes	Developer	Fixer	Rinsing water
average mix	**8 mm (5/16")**	**11 mm (7/16")**	**13 mm (1/2")**
larger than 240x300 mm	**11 mm (7/16")**	**13 mm (1/2")**	**13 mm (3/4")**
smaller than 240x300 mm	**5 mm (3/16")**	**8 mm (5/16")**	**11 mm (7/16")**

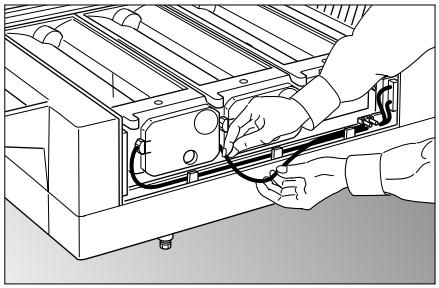
❖ *The above values are based on a daily throughput of at least 10 films. If fewer films are being processed, you ought to increase the replenishment rate of the developer and change all tanks more frequently.*

Replenishment rate adjustment

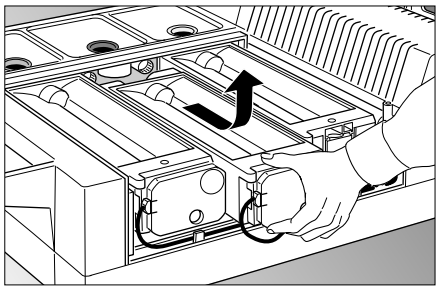
❖ *Adjustment of the replenishment pumps involves removing the processor cover and handling the tanks. If the adjustment is done with chemicals in the tanks, it is recommended that you wear protective gloves, glasses and an apron for your safety.*

1 Remove the replenishment bottles and the processor cover.

2 Carefully free the tank heater cables from their retaining clips.

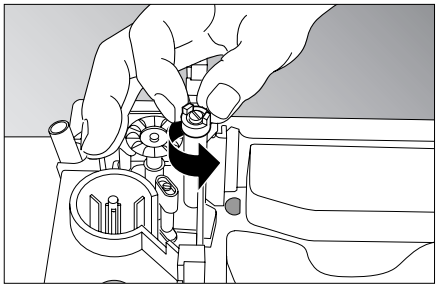


3 Lift the tank slightly and pull it forward enough to gain access to the drain valves and pumps.

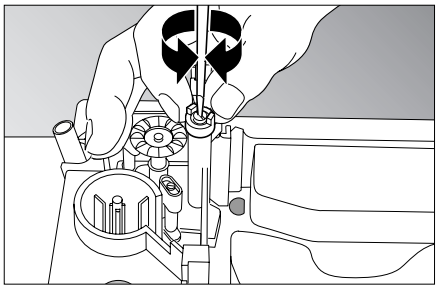


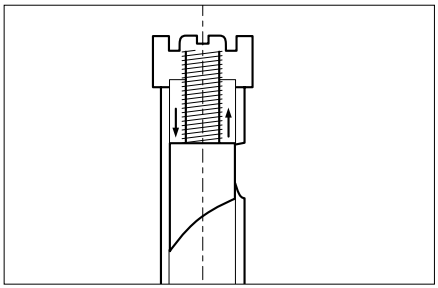
The tank covers do not have to be removed.

4 Loosen the locknut by turning it counter-clockwise.



5 Adjust the screw on top of the vertical pipe, using a screwdriver.





Carefully turn the screw clockwise to decrease the replenishment rate, or counter-clockwise to increase the rate.

6 Retighten the locknut by turning it clockwise, while holding the adjustment screw in place with the screwdriver to prevent it from turning.

7 Slide the tank back into position, making sure that the drive gears are properly engaged.

8 Replace the processor cover and the replenishment bottles.

9 Depress the manual replenishment key to initiate an additional replenishment cycle of 3 minutes.

10 Check the replenishment rate by following the procedure described earlier in this chapter. If necessary, repeat the adjustment procedure to match as much as possible the rates in the table on page 28.

Using the Cawomat 2000 IR

Switching on

1 Plug the power cord into the wall outlet.

2 Check whether the replenishment bottles are full enough and examine the level in the waste bottles.

❖ Only switch on the processor with full tanks.

3 Turn off all lights but the darkroom safelight.

4 Switch the processor on by pressing the power switch (to position 'I').

❖ The processor will automatically be switched off if the dryer assembly cover or the processor cover is not properly closed.

5 Wait for about 7 minutes to achieve the appropriate operating temperature.

Additional replenishment

If the processor has been idle for more than 24 hours, press the manual replenishment key to initiate an additional replenishment period of 3 minutes.

Film feed

❖ *Caution: Do not put films on or near the dryer! Films can get fogged when placed on the dryer.*

You should first run a test film if, for example, the machine has been standing idle for some time.

1 Push the film into the feed slot until the LED above the replenishment key shows a red light. When the LED turns off, you can feed the next film.

The largest film width is 350 mm, the smallest sizes processable are 100 x 100 mm and

90 x 120 mm. Films of these sizes have to be fed diagonally.

Films are processed for about two minutes and then discharged on the output tray.

2 Check to see if processing and drying are satisfactory. If so, you can start regular processing.

If you detect a problem, refer to chapter 4, 'Troubleshooting'. But first, try switching the processor OFF and ON again. This can often solve the problem.

Switching off

After work, or at the end of the day, switch off the Cawomat 2000 IR as follows:

1 Switch off the processor and disconnect the power cord from the outlet.

2 Remove the developer replenishment bottle (marked by a red dot) to stop unnecessary oxidation.

3 Remove the water replenishment bottle (marked by a white dot) and pour out the water to prevent the forming of algae.

4 Slightly raise the processor cover to prevent condensation of chemicals.

Chapter 3

Cleaning the Cawomat 2000 IR

This chapter guides the user through cleaning tasks which require no special skills, tools nor training.

- ☐ Cleaning frequency
- ☐ General cleaning directions
- ☐ Removal of the tanks
- ☐ Cleaning the tanks
- ☐ Cleaning the processor chassis
- ☐ Cleaning the dryer
- ☐ Reinstalling all parts

Cleaning frequency

Regular cleaning of the processor is essential to maintain optimal image quality.

Therefore, the processor should be cleaned carefully at least once a fortnight. Cleaning becomes absolutely essential when a crystalline deposit is observed on the rollers. If dry residues of chemicals stick to the rubber rollers it may happen that these stick to each other. It is therefore recommended to clean the rollers regularly with lukewarm water.

The following cleaning activities should be done on a regular basis:

Each day

- Replace the water in the water replenishment bottle daily to prevent the forming of algae.
- Follow the switching off procedure as described in the paragraph 'Using the Cawomat 2000 IR' which can be found in chapter 2, 'Getting started with the Cawomat 2000 IR'.

Each week

- Drain and clean the wash-water tank.
- If you are processing less than 80 films per week, or if the processor is interrupted for more than one week:
  - Drain the developer and fixer tanks and replenishment bottles. Replace exhausted chemicals.
  - Clean the tank covers and rollers, the transport rollers, the guide plates, the tanks and replenishment pumps, the valves on the replenishment bottles and the feed tray.
- If you are processing more than 80 films per week:
  - Perform the above tasks every two weeks.

Each month

- Clean the squeegee rollers (dryer assembly).

General cleaning directions

When cleaning the processor, always keep in mind the following directions:

- Always disconnect the power cord from the outlet.
- Never use hot water. The highest temperature allowed is 40°C.
- The electric cables to the heaters are permanent and should never be disconnected.
- Never clean the chassis or the plastic parts of the heaters in running water. Wipe with a damp cloth or sponge.
- Roller sets are numbered for proper replacement after cleaning.
  - The developer roller sets are numbered 1 & 2.
  - The fixer roller sets are numbered 3 & 4.
  - The wash-water roller sets are numbered 5 & 6.
- The replenishment bottles, bottle valves, bottle receptacles, tank covers, pumps and tanks are color-coded to prevent contamination of the chemicals and for ease of assembly after cleaning. They must be returned to their proper location after cleaning. Consult the table below.

	Developer	Fixer	Water
Replenishment bottle	**Red dot**	**Blue dot**	**White dot**
Bottle valve	**Red color**	**Blue color**	**Beige color**
Bottle receptacle	**Red color**	**Blue color**	**White color**
Tank cover	**Red dot**	**Blue dot**	**White dot**
Tank	**Red dot**	**Blue dot**	**White dot**
Pump	**Red color**	**White color**	**Black color**
Rollers	**N°. 1 & 2**	**N°. 3 & 4**	**N°. 5 & 6**

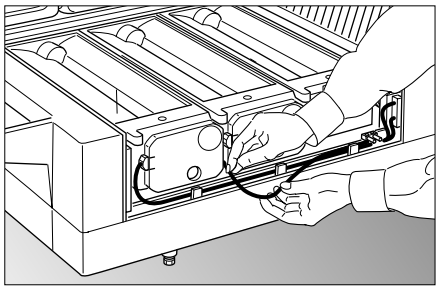
❖ *You are reminded to handle all chemicals with care, to wear protective gloves and an apron to protect your clothing, and to wear protective glasses for your safety. Always conform to local regulations regarding the disposal of chemicals.*

Removal of the tanks

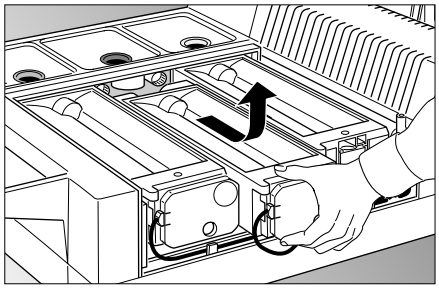
❖ *Always keep in mind the general cleaning directions (refer to the previous page).*

1 Remove the replenishment bottles and processor cover.

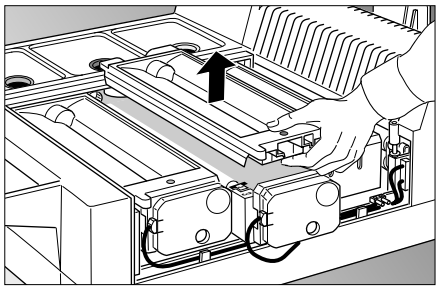
2 Carefully free the tank heater cables from their retaining clips.



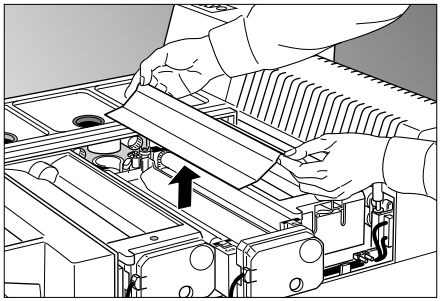
3 Slightly lift the tank to be cleaned and pull it forward enough to give free access to the drain valve.



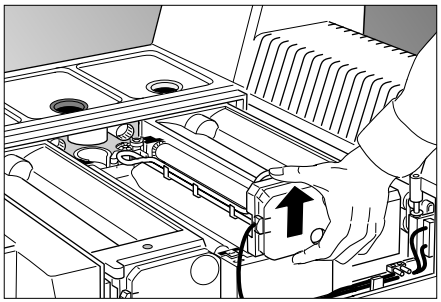
4 Remove the tank cover.



5 Remove the guide plate.

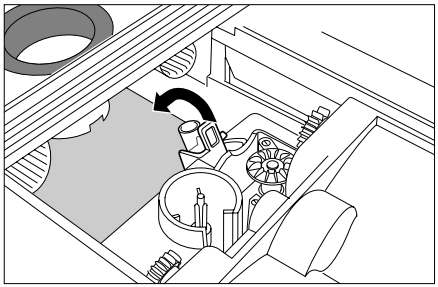


6 Remove the tank heater by lifting it straight up.



The electrical connections are fitted firmly and must never be disconnected.

7 Drain the tank by releasing the drain valve clamp.



It may be necessary to gently pull the end of the drain tube to facilitate proper draining. Allow liquids to run out. For easy flow, the drain tube should not be kinked.

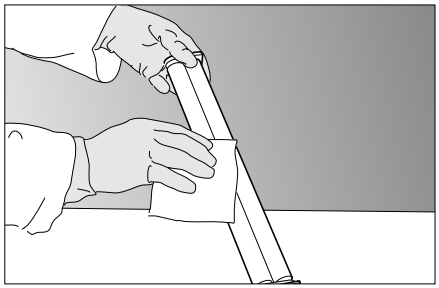
8 Remove the tank from the processor.

Repeat steps 3 to 8 for all tanks having to be cleaned.

Cleaning the tanks

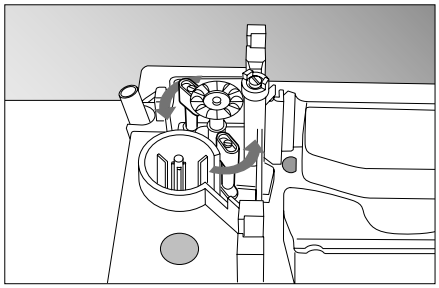
1 Take the tank, the tank cover and the guide plate to a sink for cleaning.

2 Remove the transport rollers from the tank.

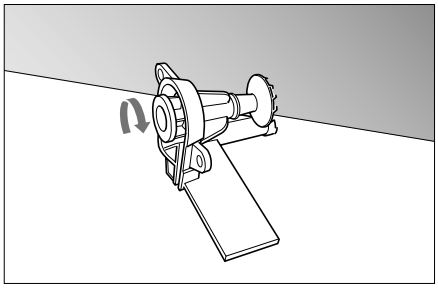


Wash the rollers with a sponge and running water.

3 Unfasten the replenishment pump by loosening the two wing nuts, and then pull the pump out.



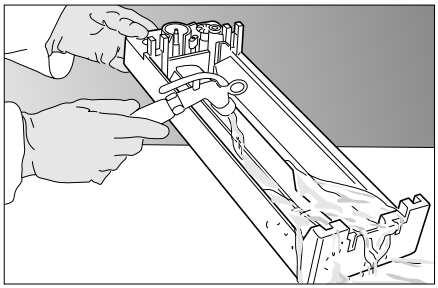
4 Clean the replenishment pump in running water, paying special attention to the impeller.



5 After cleaning, reinstall the pumps, observing the color codes on the pumps and the tanks, in order to avoid contamination.

Consult the table on page 36.

6 With the drain valve open, wash the tank under running water, allowing water to drain through the valve. After draining, close the drain valve.



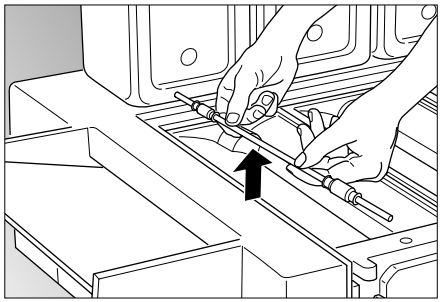
7 Clean the guide plate, the tank covers and the rollers in running water.

Cleaning the processor chassis

1 Remove the light-tight cover accessory (if present).

2 Clean the feed tray and the feed slot with a sponge and lukewarm water.

3 Disengage and clean the film scanner.

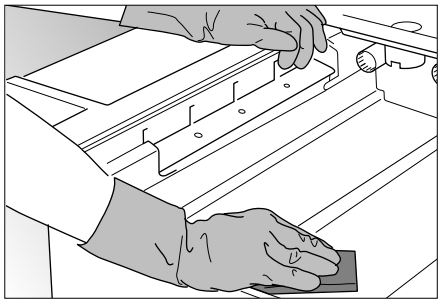


If necessary, take the film scanner to a sink for cleaning.

4 Clean the heaters.

Never hold the plastic part of the heaters in running water, or immerse it in a liquid.

5 Clean the drainage troughs using a sponge and lukewarm water.

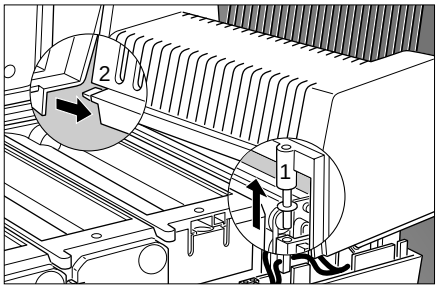


6 Clean any chemical residue around the replenishment receptacles and on the exterior surface of the processor chassis.

7 Replace the film scanner and the light-tight cover accessory.

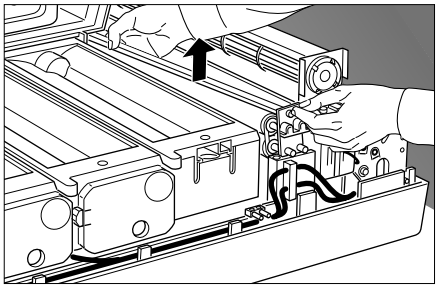
Cleaning the dryer

1 Remove the dryer assembly cover.



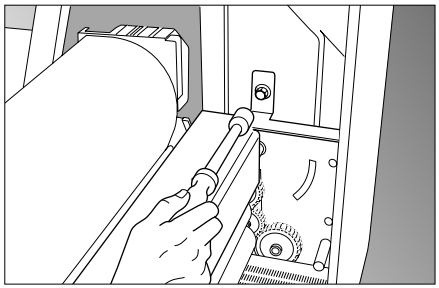
Lift the cover slightly to disengage the interlock pin [1], and then slide the cover forward to remove it from its rear holding lip [2].

2 Remove and clean the squeegee roller assembly.



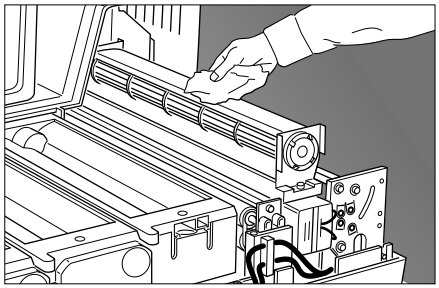
Do not dismantle the squeegee roller assembly. Clean the rollers with lukewarm water.

3 With a socket wrench, loosen the fastener that secures the dryer transport cover and remove the cover. Lift the dryer transport roller assembly out of the processor.



Clean the rollers if necessary. Do not dismantle the dryer transport roller assembly.

4 Wipe clean the dryer heater and the fan compartment, with a damp cloth.



Make sure no water gets into the dryer.

5 Reinstall the transport roller assembly.

Make sure that the dryer transport drive gear is properly engaged.

6 Replace the dryer transport cover.

7 Reinstall the squeegee roller assembly.

Make sure that the squeegee roller drive gear is properly engaged.

8 Securely close the dryer assembly cover.

Make sure that the interlock pin is properly engaging the interlock switch.

Reinstalling all parts

❖ *Follow the color codes carefully. Consult the table on page 36.*

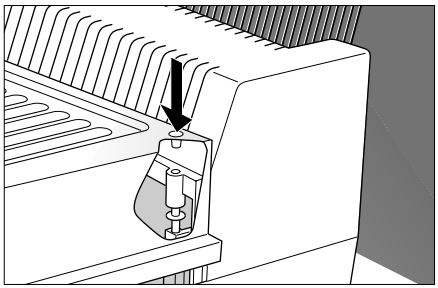
1 Put the rollers, the guide plates and the tank covers back into the appropriate tanks.

Make sure that the bent edges of the guide plates are inserted into the grooves on the side of the even numbered rollers of the tanks.

2 Install the tank units into the processor.

- Make sure that the roller gears are properly engaged with their drive gears.
- Make sure that the drain valves are fastened in the upright/closed position.
- Make sure that the heaters are engaged in their retaining slots.
- Make sure that the heater cables are put back in their clips.

3 Replace the processor cover.



Make sure that the interlock pin, which is marked on the processor cover with a white dot, is properly engaged with the interlock switch (together with the pin on the dryer assembly cover). If not, the processor will fail to work.

4 Chemical and water replenishment bottles may now be reinserted.

The tanks will be filled automatically.

Chapter 4

Troubleshooting

This chapter provides solutions to some problems you may encounter while working with the Cawomat 2000 IR.

- ☐ Troubleshooting checklist
- ☐ Processor fails to operate
- ☐ Appearance of processed films
- ☐ Film transport problems

Troubleshooting checklist

The Cawomat 2000 IR is designed for trouble-free operation. Nevertheless, if you encounter some problems resulting from improper operating procedures, processing techniques or equipment malfunction, this section will help you analyze the problem, determine its cause, and solve it if it can be remedied without the intervention of a service technician.

Most problems related to processed films can be traced back to improper operating, replenishment or cleaning procedures. If you have followed all installation, operating and cleaning instructions as described in chapters 1, 2 and 3, the problem can be caused by an electrical or mechanical malfunction.

The troubleshooting procedures in this chapter should help you to identify and correct most common problems.

- *Some problems can be corrected simply by turning the power switch off and then on again.*

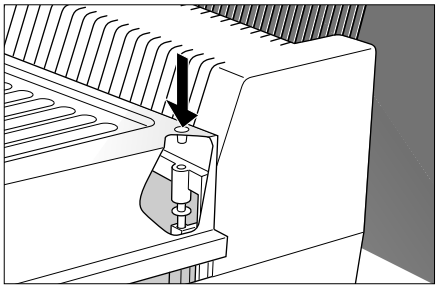
- *Always wear rubber gloves, protective glasses and an apron when working with chemicals. It is also recommended that the tanks be drained before handling parts submerged in chemicals.*

Processor fails to operate

1 Check that the power cord is plugged in and that the power switch is on.

2 Check that both the dryer assembly cover and the processor cover are firmly in place.

3 Check that the interlock pins in the dryer and processor covers are engaging the interlock switch.



The processor cannot work if the interlock switch is not engaged as shown on the figure above.

4 If none of the above provides a solution, the problem can be caused by a defective power switch or an electrical circuit malfunction.

Call your local service organization.

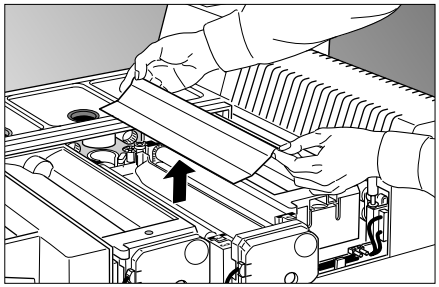
Appearance of processed films

Scratches (lengthwise)

1 Check the condition of the feed table.

If required, clean it with a sponge and lukewarm water. Dry the feed table prior to processing a film.

2 Remove the processor cover and the tank covers and check the tank guide plates.

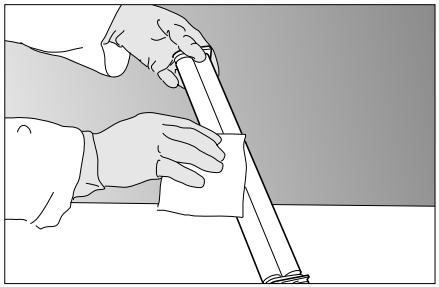


If required, remove and clean the guide plates with a sponge and lukewarm water.

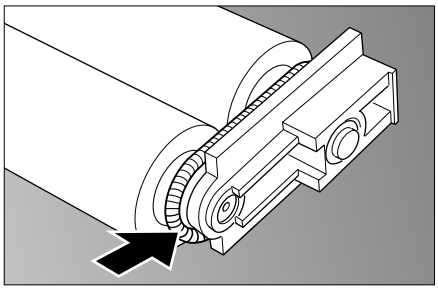
Roller marks (crosswise)

1 Check the condition of the tank transport rollers and the dryer squeegee rollers.

- Remove the processor cover, the tank covers and the dryer assembly cover to access the rollers.
- Remove the rollers and clean them in a sink with a sponge and lukewarm water. Follow the instructions as described in chapter 3, ‘Cleaning the Cawomat 2000 IR’.



2 Check the roller springs for proper tension.



If they are loose, replace them: refer to chapter 5 ‘Advanced service: instructions for skilled service personnel’, for the appropriate instructions.

3 Check the upper and lower transport roller drive gears for damage.

If they need to be replaced, refer to chapter 5 ‘Advanced service: instructions for skilled service personnel’.

4 Check the squeegee roller drive gear for damage (dryer assembly).

If it needs replacement, refer to chapter 5 ‘Advanced service: instructions for skilled service personnel’.

5 Check that the developer is not exhausted.

- Drain and clean the developer tank and the replenishment bottle by following the instructions in chapter 3, ‘Cleaning the Cawomat 2000 IR’.
- Mix new developer in the replenishment bottle and refill the developer tank: refer to chapter 2, ‘Getting started with the Cawomat 2000 IR’.

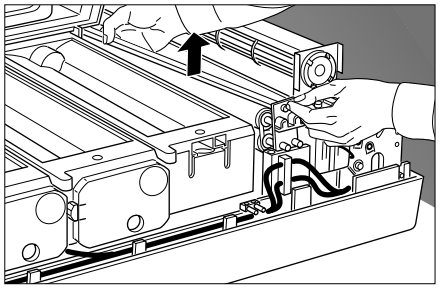
6 Check and, if necessary, adjust the developer replenishment rate.

The procedures for checking and adjusting the developer replenishment rate can be found in chapter 2, ‘Getting started with the Cawomat 2000 IR’.

Water spots

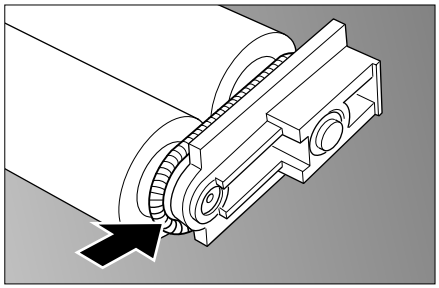
1 Check the squeegee rollers in the dryer assembly for dirt deposits.

- Remove the processor cover and the dryer assembly cover.
- Remove the squeegee roller assembly and clean it with lukewarm water. Do not dismantle the squeegee roller assembly.



2 Check the squeegee rollers for stretched retaining springs.

The retaining springs hold the rollers tightly together. Inspect the springs on each end, without disassembling the rollers. If the rollers are loose, the spring has to be replaced. Call your local service organization.



Irregular drying patterns

1 Check that the dryer temperature is not too high.

2 Check that the room temperature is not too low.

Ambient room temperature should be between 15°C and 30°C / 59°F and 86°F.

Insufficient or excessive contrast, insufficient density

1 If the processor has been idle for more than one day, the developer may have to be replenished.

- Press the manual replenishment key to initiate a 3-minutes replenishment cycle.
- Run an exposed test sheet to check results.

2 Remove the developer replenishment bottle and place a thermometer in the receptacle to check the developer temperature.

If the temperature is not in the range of 33°C and 35°C / 92°F and 94°F, call your local service organization.

3 The developer can be improperly mixed or exhausted.

- Drain and clean the developer tank and the replenishment bottle by following the instructions in chapter 3, 'Cleaning the Cawomat 2000 IR'.
- Mix new developer in the replenishment bottle and refill the developer tank: refer to chapter 2, 'Getting started with the Cawomat 2000 IR'.

4 Check, and if required, adjust the developer replenishment rate.

Refer to chapter 2, 'Getting started with the Cawomat 2000 IR' for checking and adjusting the developer replenishment rate.

5 Check the replenishment system.

Follow the troubleshooting procedures for film drying problems, as discussed in chapter 5, 'Advanced service: instructions for skilled service personnel'.

Dense fogging

1 The developer can be contaminated by fixer.

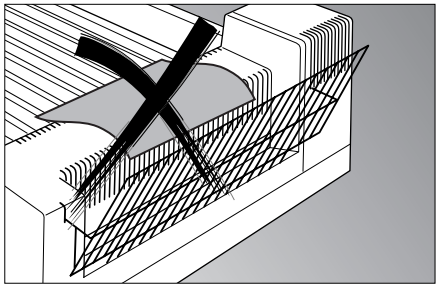
- Drain and clean the developer tank and the replenishment bottle by following the instructions in chapter 3, ‘Cleaning the Cawomat 2000 IR’.
- Mix new solutions in the developer replenishment bottle: refer to chapter 2, ‘Getting started with the Cawomat 2000 IR’.
- After insertion of the replenishment bottle, the tank will be refilled automatically.

2 Make the same checks as in the procedure to solve contrast problems (see above).

3 Check that the processor is level.

Incorrect levelling can result in excessive drainage. If you want to level the processor, refer to chapter 1, ‘Installation of the Cawomat 2000 IR’.

❖ *Caution: Do not put films on or near the dryer! Films can get fogged when placed on the dryer.*



Film not completely dry

Most film drying problems are caused by insufficient hardening of the film due to inadequate fixer replenishment or to fixer exhaustion. However, the problem can also be caused by a mechanical or electrical failure in the control circuits, the dryer or the replenishment system, or by adverse temperature or humidity problems. Refer to ‘Film drying problems’ in chapter 5, ‘Advanced service: instructions for skilled service personnel’.

Film transport problems

If the film is not transported through any of the rollers, the source of the problem could be the transport drive gears in one of the tanks or the dryer. Alternatively, the problem can be caused by one of the components that drive the gears: the gears in the main drive system, the drive motor itself or the drive belt. Refer to chapter 5, ‘Advanced service: instructions for skilled service personnel’.

❖ *If the drive motor is defective, call your local service organization.*

Chapter 5

Advanced service: instructions for skilled service personnel

This chapter deals with troubleshooting and maintenance work for the Cawomat 2000 IR during which live electrical or hot components may become exposed.

- ☐ Important safety notice
- ☐ Resetting the thermal cutouts
- ☐ Film drying problems
- ☐ Maintenance of the main drive assembly
- ☐ Adjustment of replenishment pump gears
- ☐ Replacement of roller springs

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Important safety notice

Warning

This chapter deals with repairs and preventive maintenance work for the Cawomat 2000 IR during which live electrical or hot components may become exposed.

The procedures described hereafter can imply hazardous situations and are therefore to be carried out by skilled service personnel only.

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Resetting the thermal cutouts

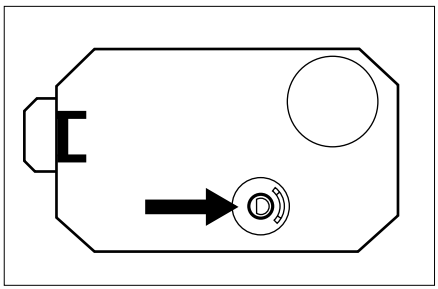
Thermal cutouts are provided to protect the developer and the fixer tank heaters. If the heaters do not get warm, it is possible that the cutouts have been activated.

1 Remove the processor cover.

2 Check the developer and/or fixer tanks to make sure that they are properly filled.

Replenish the tanks if required. Refer to chapter 2, 'Getting started with the Cawomat 2000 IR'.

3 With tanks properly filled, press the reset switch on the appropriate heater.



Press in the direction of the arrow to reset the thermal cutout.

4 If several attempts to reset the cutouts fail to remedy the problem, call your local service organization.

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Film drying problems

Most film drying problems are caused by insufficient hardening of the film due to inadequate fixer replenishment or to fixer exhaustion. However, the problem can also be caused by a mechanical or electrical failure in the control circuits, the dryer or the replenishment system, or by adverse temperature or humidity problems. You may have to check one or more of the following:

Mechanical / Electrical

1 Check for excess temperature or humidity.

Ambient temperature should be less than 30°C / 86°F and humidity should be less than 80%.

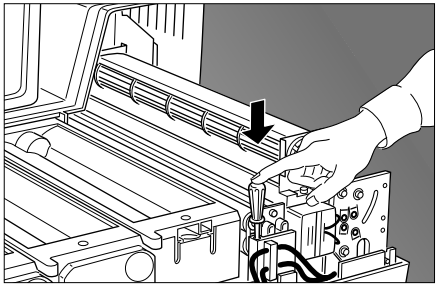
2 Check that the dryer fans are operating.

– Turn the power switch OFF, and then ON again to activate a fan sequence.

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

3 Check that the infrared tubes in the dryer assembly light during the dryer fan cycle.

- This can be viewed by removing the processor cover and dryer assembly cover.
- To momentarily check the infrared tubes, depress the interlock switch with a pencil or a screwdriver.



Chemical / Fixer replenishment

1 Check that the fixer is not exhausted.

- If the tanks have not been cleaned according to the weekly cleaning schedule (refer to chapter 3, 'Cleaning the Cawomat 2000 IR'), drain and clean the fixer tank and the replenishment bottle.
- Replace the fixer tank, mix a new solution in the replenishment bottle and reinsert it in the processor. The tank will be filled automatically.
- Check for proper film drying by running an exposed test film.

2 If the processor has been idle for more than one day, the fixer may have to be replenished.

Depress the manual replenishment key to initiate a replenishment cycle of 3 minutes. The indicator light should remain illuminated and the replenishment pump motor should operate at double speed.

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

3 If, after pressing the replenishment key, the indicator does not light, refer to the next procedure, ‘Mechanical / Replenishment’.

4 If the indicator does light, but the pump motor does not increase in speed, the problem can be a blown fuse, a defective pump motor, or an electrical malfunction. Refer to the next procedure, ‘Mechanical / Replenishment’.

5 Since the problem could also be caused by insufficient fixer replenishment, the replenishment rate can be checked.

- Check and, if necessary, adjust the fixer replenishment rate following the procedures in chapter 2, ‘Getting started with the Cawomat 2000 IR’.
- When the replenishment rate is corrected, check for proper film drying by running an exposed test film.

Mechanical / Replenishment

1 Listen to the sound of the replenishment pump motor.

If the motor speed does not increase to two times its normal rate when the manual replenishment key is depressed, either a fuse could be blown or the motor could be defective.

- Call a service technician.

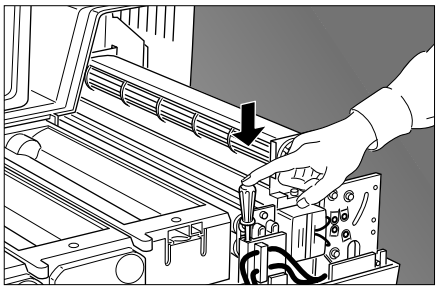
2 If the pump motor seems to be working properly, check that the fixer replenishment pump is operating.

- The trouble can be caused by a defective pump gear, pump drive gear, replenishment pump drive belt or motor drive belt. Refer to ‘Maintenance of the main drive assembly’.
- Check to see whether chemicals pass through the drain hoses into the waste bottles when the replenishment key is depressed.

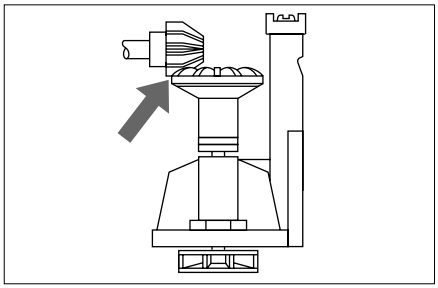
INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

3 Check if any gears are binding or making unusual noises.

To inspect the pump gears and pump drive gears, the processor cover and the tank covers need to be removed. Depress the interlock switch, using a pencil or a screwdriver, in order to keep the processor turning while the cover is removed.



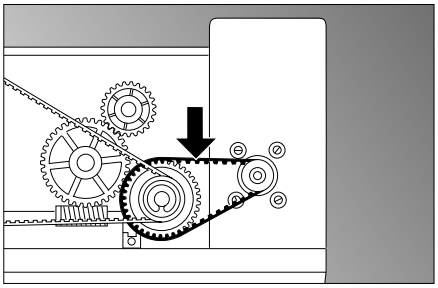
The pump gears must be properly engaged with their associated drive gear. If either or both gears are defective or worn, replenishment will be affected.



The height of the pump gear is critical to gear engagement and may require adjustment. The instructions to adjust or replace pump gears can be found in ‘Maintenance of the main drive assembly’ and ‘Adjustment of replenishment pump gears’ respectively.

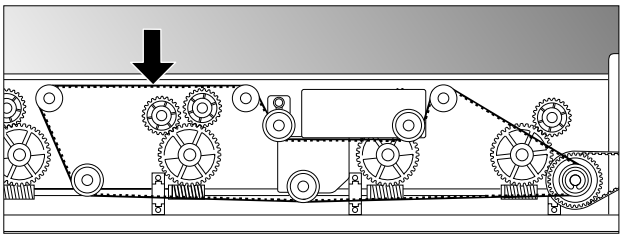
INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

4 If none of the pump gears is turning but the pump motor sound is OK, check for a broken or slipping motor drive belt.



This belt connects the pump drive motor to the larger of two transfer gears. For a location diagram and replacement instructions, refer to ‘Maintenance of the main drive assembly’.

5 The problem can also be a broken or slipping replenishment pump drive belt.



This belt simultaneously drives the three pumps. For a location diagram, refer to ‘Maintenance of the main drive assembly’. If this belt is defective, call your local service organization.

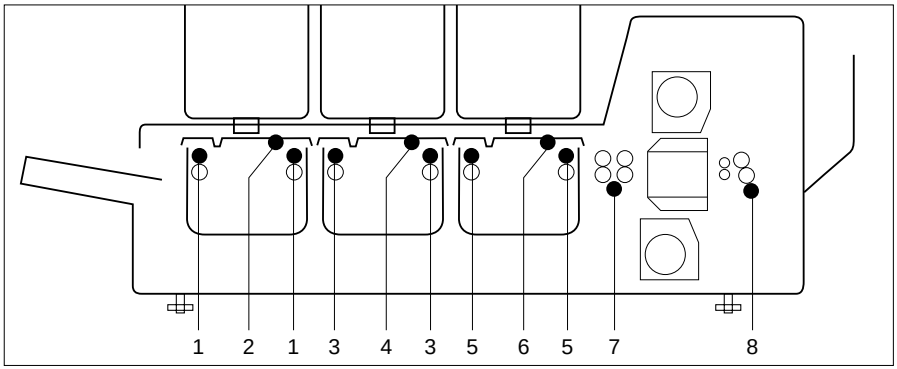
INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Maintenance of the main drive assembly

Several replaceable parts are located in the main drive assembly at the rear of the processor, under the rear cover. It is not likely that you will have to replace parts in the main drive assembly, but if any part should become defective, it can easily be replaced.

❖ *When maintenance procedures require the handling of parts that are in contact with chemicals, rubber gloves and suitable protection should be worn. Remove the replenishment bottles, drain the tanks and then rinse the parts in water, in order to remove all chemicals. The parts can now safely be handled without rubber gloves.*

Location of gears

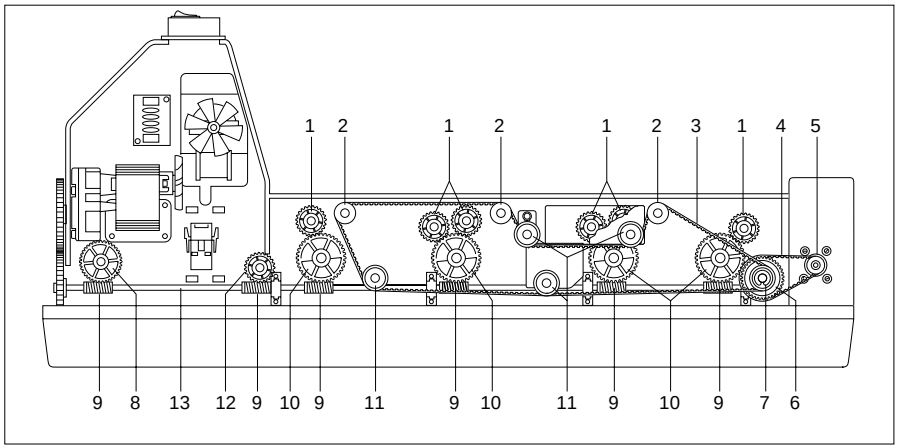


1. Developer transport roller drive gear
2. Developer pump drive gear
3. Fixer transport roller drive gear
4. Fixer pump gear
5. Water transport roller drive gear
6. Water pump drive gear
7. Squeegee roller drive gear (red)
8. Dryer transport roller drive gear

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Gear components

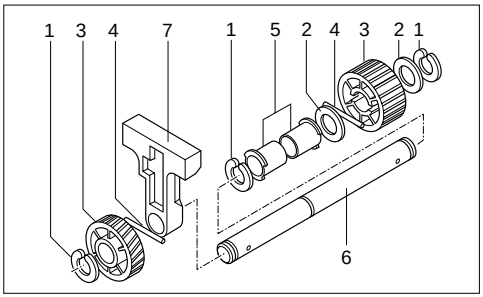
The diagram below gives the location of the different transport drive gears.



1. Transport roller drive gear
2. Replenishment pump drive gear
3. Replenishment pump drive belt
4. Motor drive belt
5. Motor drive gear
6. Larger transfer gear
7. Smaller transfer gear
8. Dryer transport roller drive gear
9. Worm drive
10. Transport roller transfer gear
11. Belt guide roller
12. Dryer squeegee roller drive gear
13. Main worm drive shaft

The diagram below gives an overview of the main components of a drive gear shaft. However, individual drive gears can be assembled differently. Always take care to use the same number of components in the same order when reassembling gears.

1. Snap ring
2. Spacer
3. Gear
4. Cylinder pin
5. Bearing
6. Drive shaft
7. Drive shaft holder



INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Accessing the main drive assembly

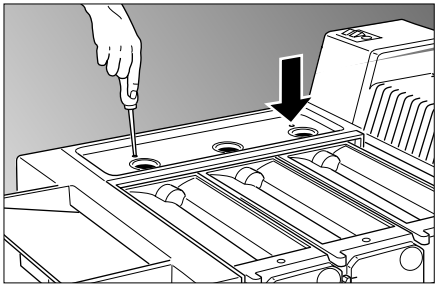
1 Turn the power switch off and disconnect the power cord.

2 Remove the replenishment bottles, the processor cover and tank covers.

3 Pull the tanks out partially and drain them.

Refer to chapter 3, ‘Cleaning the Cawomat 2000 IR’.

4 Remove the two screws securing the rear cover using a screwdriver, and remove the rear cover.



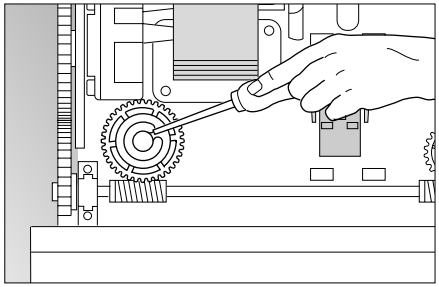
INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Replacement of defective gears: general procedure

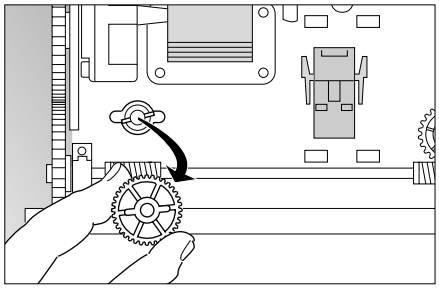
❖ *Prevent small parts such as snap rings, cylinder pins, washers and spacers from falling into drain holes or into the processor sink. Use tape to cover exposed holes.*

After locating a defective gear, removal and replacement follow this general procedure:

1 Remove the snap ring by prying it off.



2 Withdraw the gear slowly from its shaft, so as not to lose any spacers or washers (e.g. there may be several above and below a pump gear), or cylinder pins holding the gear to the shaft.



INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

3 Replace all spacers and washers and slide a new gear on the shaft.

Use the same number of spacers and washers in the same position.

4 Replace the snap ring.

If a snap ring has been lost or damaged, replace it with a new one.

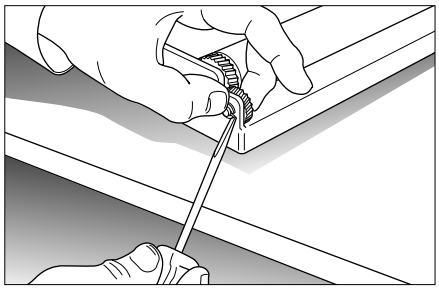
5 Check the assembly by turning the drive gear with your finger.

If the drive roller turns smoothly, all parts can be replaced and the operation resumed.

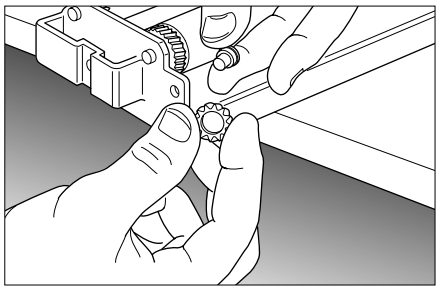
INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Replacement of a cover drive gear

1 Remove the snap ring by prying it off.



2 Remove the fastener and the upper rack drive gear.



3 Replace all spacers and washers and slide a new gear on the shaft.

Use the same number of spacers and washers in the same position.

4 Replace the snap ring.

If a snap ring has been lost or damaged, replace it with a new one.

5 Check the assembly by turning the drive gear with your finger.

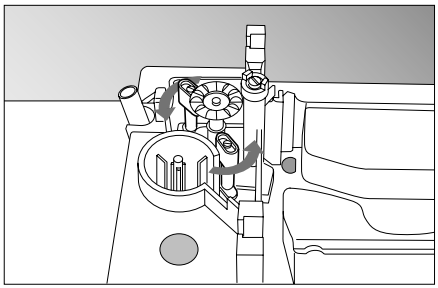
If the drive roller turns smoothly, the tank cover can be replaced and the operation resumed.

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

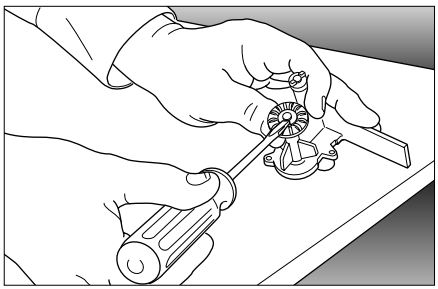
Replacement of a replenishment pump gear

❖ *Refer to chapter 3, 'Cleaning', to know how to locate and access a replenishment pump.*

1 Unfasten the replenishment pump by loosening the two wing nuts, and then pull the pump out.

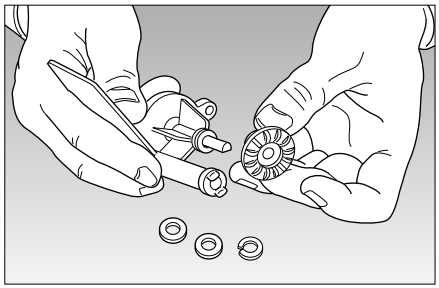


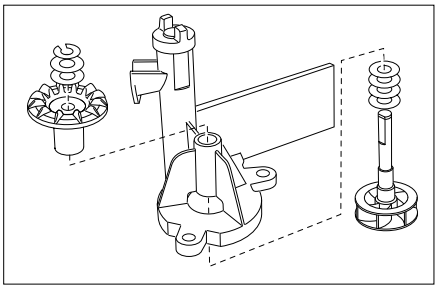
2 By prying it off, remove the snap ring that holds the pump gear onto the pump shaft.



INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

3 Withdraw the gear slowly from its shaft, so as not to lose any spacers or washers (e.g. there may be several above and below the pump gear), or cylinder pins holding the gear to the shaft.





The “D” shape of the shaft matches the shape of the hole in the pump gear to prevent it from turning independently.

4 Replace all spacers and washers and slide a new gear on the shaft.

Use the same number of spacers and washers in the same position.

❖ *Refer to ‘Adjustment of replenishment pump gears’ if the pump is not properly engaged with its associate drive gear.*

5 Replace the snap ring.

If a snap ring has been lost or damaged, replace it with a new one.

6 Check the assembly by turning the drive gear with your finger.

If the pump drive gear turns smoothly, all parts can be replaced and the operation resumed.

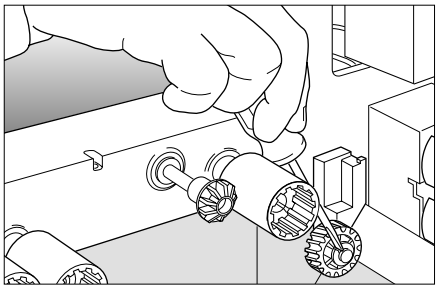
INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Replacement of the red squeegee roller drive gear

❖ *Refer to the diagram on page 64 for the location of the red squeegee roller drive gear.*

The squeegee roller assembly can be cleaned by the user, but may never be dismantled. If servicing is necessary, call your local service organization. The red drive gear, however, can be replaced if it is damaged.

1 Remove the snap ring by prying it off.



2 Withdraw the damaged gear slowly from its shaft.

3 Slide a new red drive gear on the shaft.

4 Replace the snap ring.

If a snap ring has been lost or damaged, replace it with a new one.

5 Replace the squeegee roller assembly, being certain to engage the red drive gear.

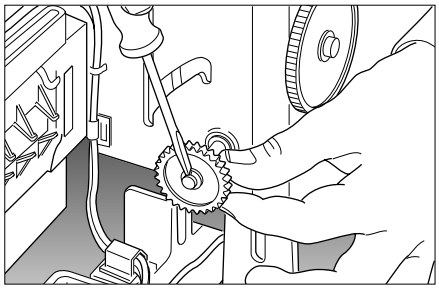
INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Replacement of the dryer transport roller drive gear

❖ *Refer to the diagram on page 64 for the location of the dryer transport roller drive gear.*

The dryer transport roller assembly can be cleaned by the user, but may never be dismantled. If servicing is necessary, call your local service organization. The drive gear, however, can be replaced if it is damaged.

1 Remove the snap ring by prying it off.



2 Withdraw the damaged gear slowly from its shaft.

3 Slide a new drive gear on the shaft.

4 Replace the snap ring.

If a snap ring has been lost or damaged, replace it with a new one.

5 Replace the transport roller assembly, being certain to engage the drive gear.

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

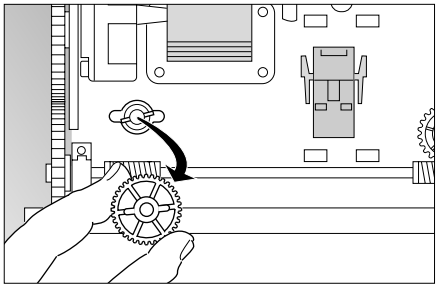
Replacement of a worm drive gear

A worm drive gear is driven by a worm drive on the main drive shaft. Consult the diagram on page 65.

After accessing the main drive assembly, do the following:

1 Remove the snap ring and the spacer on the worm drive shaft side of the processor.

2 Slide the drive gear off its shaft.



❖ *The cylinder pin is removable, so be careful not to drop it.*

3 Slide the new gear on the shaft and replace the snap ring.

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

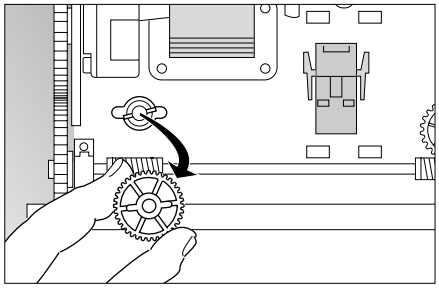
Replacement of a drive shaft bearing

Excessive wear on certain bearings may cause gear misalignment. The replacement procedure for all shaft bearings is essentially the same. Consult the diagram on page 65.

After accessing the main drive assembly, proceed as follows:

1 Remove the snap ring and the spacer on the worm drive shaft side of the processor.

2 Slide the drive gear off its shaft.



3 Remove the cylinder pin and spacer(s).

Be careful not to drop any components.

4 On the opposite side, pull the shaft out.

Transport drive gear shafts are pulled out at the chemical tanks side.

5 Replace the defective shaft bearing(s) from the front and/or the rear sides of the shaft channel.

6 Reinsert the gear shaft through the bearings and replace the spacer.

7 Put the cylinder pin back, as well as the worm drive gear, and secure the gear with a snap ring.

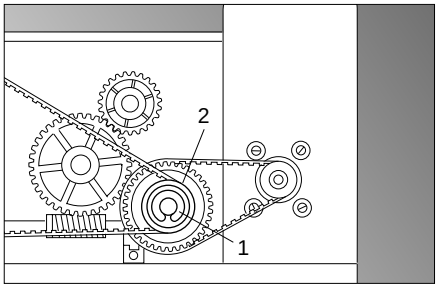
Carefully align the worm drive gear with the worm drive on the main shaft.

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

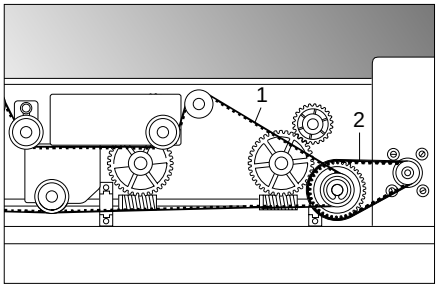
Replacement of the motor drive belt

The motor drive belt is a toothed belt that engages sprockets in the motor drive gear and the larger of two transfer gears. Before replacing the motor drive belt however, the longer replenishment pump drive belt must be removed. Consult the diagram on page 65.

1 Remove the keeper [1] from the smaller transfer gear [2] shaft and remove the plastic retaining disc.



2 Disengage the replenishment pump drive belt [1] from the sprockets of the smaller transfer gear.



3 Disengage the motor drive belt [2] from the sprockets of the larger transfer gear and then from the motor drive gear.

4 Slide the spare motor drive belt first onto the motor drive gear and then on to the larger transfer gear.

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

5 Slide the replenishment pump drive belt onto the smaller transfer gear.

Make certain it is properly engaged with the three pump drives.

6 Replace the plastic retaining disc and the keeper on the transfer gear shaft.

Replacement of the replenishment pump drive belt

The replacement of the replenishment pump drive belt is not user serviceable. Call your local service organization.

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Reassembling the main drive assembly

1 Put the rear cover back into its place and secure it with the two screws.

2 Make sure that the tanks are installed and that all gears are properly engaged.

3 Replace the tank covers and the processor cover.

Make sure that the interlock switch, indicated on the processor cover with a white dot, is properly engaging the interlock switch. If not, the processor will fail to operate.

4 Insert the replenishment bottles.

The tanks will be filled automatically.

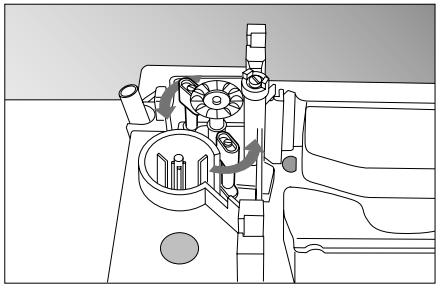
INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Adjustment of replenishment pump gears

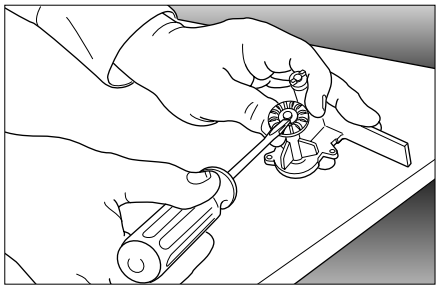
If a pump gear is not properly engaged with its associated drive gear, the position of the gear on the shaft can be lowered or raised by adjusting the number of spacers below the pump gear. Spacers may be reused, as they are not subject to wear.

❖ *Refer to chapter 3, 'Cleaning', to know how to locate and access the replenishment pumps.*

1 Unfasten the replenishment pump by loosening the two wing nuts, and then pull the pump out.

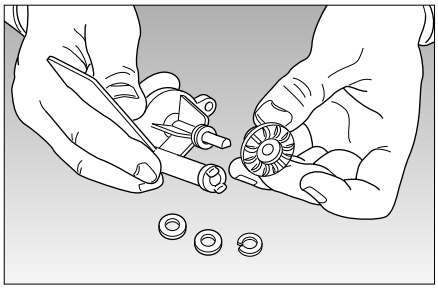


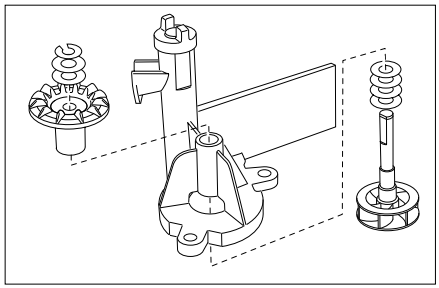
2 By prying it off, remove the snap ring that holds the pump gear onto the pump shaft.



INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

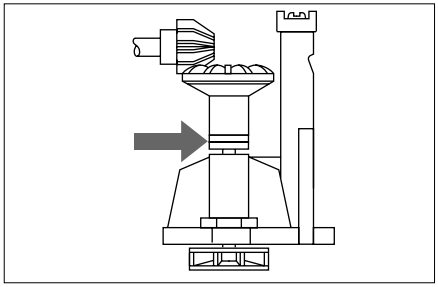
3 Withdraw the gear slowly from its shaft, so as not to lose any spacers or washers (there may be several above and below a pump gear), or cylinder pins holding the gear to the shaft.





4 Replace the gear, the spacers and the washers.

Increase or decrease the number of washers to adjust the position of the pump gear.



5 Replace the snap ring.

If a snap ring has been lost or damaged, replace it with a new one.

6 Check the assembly by turning the drive gear with your finger.

If the drive roller turns smoothly, the tank cover can be replaced and the operation resumed.

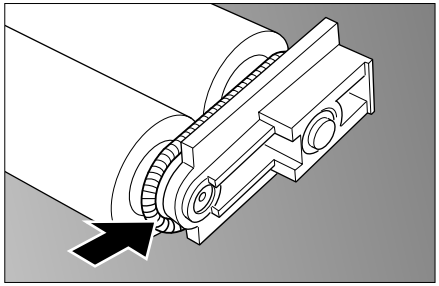
INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Replacement of roller springs

Replacing a transport roller spring

Refer to chapter 3, 'Cleaning the Cawomat 2000 IR', for the location and the removal of transport rollers.

1 Remove the roller spring by sliding it over the end of the bearing on the transport roller assembly.



2 Slide a new roller spring over the bearing, taking care not to stretch out the spring while fitting it in place.

Make sure that the spring is properly relocated in the bearing grooves.

Replacing a squeegee roller spring

The squeegee roller assembly can be removed easily for cleaning purposes, but it can not be dismantled. Call your local service organization if a squeegee roller spring needs replacement.

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

INSTRUCTIONS FOR SKILLED SERVICE PERSONNEL ONLY

Appendix A

Equipment information sheet

Specifications

General	
Product description	
Type of product	Medical film processor
Commercial name	Cawomat 2000 IR
Model number	9462/305/345
Type	Table-top model
Original seller/manufacturer	Agfa-Gevaert NV-Mortsel
Labelling	
CE (Type 305)	93/42 EEC 'Medical Devices' (Europe)
TÜV (Type 305)	EN 60950; DIN 1988 (Germany)
ULc (Type 345)	UL 1950, CSA 22.2 No.950 (US)
Dimensions	
Length, feed table and receiving tray excluded	940 mm
Length, feed table and receiving tray included	1090 mm
Width	650 mm
Height	370 mm
Height, receiving tray included	400 mm
Weight	
Unpacked and empty	49 kg
Packed (with accessories)	81.5 kg
Materials (refer to the recycling instructions manual for a complete overview of materials) Equipment does not contain as a constituent element: CFC or HCFC, Asbestos, PCB or PCT, Mercury, Cadmium, Lead as additive to plastics parts. Plastic parts > 50 g are marked in accordance with ISO 11469.	
Electrical connections	
ABC: 342XN (Type 9462/305)	230-240 V, 50 Hz, 8 A (CE & TÜV)
ABC: 342ZR (Type 9462/345)	120 V, 60 Hz, 9 A (UL)
Power consumption	
Standby	180 W
During film processing	500 W (max. 1700 W)
Environmental conditions	
Relative humidity	10% - 80% (non-condensing)
Room temperature	15 °C - 30 °C

Recommended consumables[1]	
Developer	Agfa G153 X-ray developer
Fixer	Agfa G 353 and G 354 X-ray fixer
Film	All general X-ray films
Water	tap water
Tank volumes	
Developer tank	0.9 l
Fixer tank	0.9 l
Water tank	0.9 l
Replenishment bottles	5 l each (optional 2.5 l)
Developer temperature (default value upon installation)	
Developer tank	34 °C
Fixer temperature (default value upon installation)	
Fixer tank	34 °C
Replenishment rates (default values upon installation)	
Developer	600 ml/m^2
Fixer	750 ml/m^2
Water	900 ml/m^2
Film characteristics	
Smallest film size	100 x 100 mm or 90 x 120 mm
Max. film width	360 mm (max format 350 x 430 mm)
Physical emissions	
Noise emission	(sound power level according to ISO 7779)
- During film processing	55 dB(A)
- Standby	46 dB(A)
Magnetic field	1.5 mT max.
Radio frequency emission	according to CE requirements
Heat emission	
- During film processing	total: 1800 kJ/h; into the room: 1800 kJ/h
- Standby	total: 650 kJ/h; into the room: 650 kJ/h
Chemical emissions (equipment & consumables) depending on processing conditions, and type of chemicals; in direct surroundings of equipment, when using recommended chemicals, and if installed according to instructions.	
SO_2 (sulfur dioxide)	below TLV values[2]
CH_3COOH (acetic acid)	below TLV values[2]

Process data	
Output	60 films per hour (240 x 300 mm format)
Processing time	137 seconds from dry to dry
Film transport speed	280 mm/min.
Drying system	
Infrared drying (6 levels)	air throughput about 80 m^3/h
End of life	
Estimated product life (if regularly serviced and maintained according to CAWO instructions)	7 yrs
For re-use, recycling or disposal of used apparatus and for recycling instructions, please contact your local service organization.	

Options	Function	ABC code
Light-tight cover	Darkroom protection	2T7ZG
Fixed water connection	For continuous water supply	HV49W
Support table	Sturdy and easy to clean	25JMK
Replenishment system	230-240 V / 50/60 Hz	34UZW
Replenishment system	120 V / 60 Hz	3XN83
Consumables	Order volume	ABC code
Agfa G153 X-ray developer	Set 12 x 2.5 l of developer chemical	HT536
Agfa G353 X-ray fixer	Set 18 x 2.5 l of fixer chemical	2TRXG
Agfa G354 X-ray fixer	Set 18 x 2.5 l of fixer chemical	2828Q
Replenishment bottles	Set 3 x 2.5 l	3N5PN
Replenishment bottles	Set 3 x 5 l	3N5OL

1 Take note of the relevant Material Safety Data Sheets

2 Threshold limit value for chemical substances in the work environment as adopted by the ACGIH (American Conference of Governmental Hygienists).

Safety standards

The Cawomat 2000 IR complies with the VDE 0805/EN 60950/IEC 950 safety regulations and with the European regulations on radio interference suppression EN 55022, Class B and CISPR Publication 22 (1990) Level B.

The non-return water connection system complies with the DIN 1988 standards.

The Cawomat 2000 IR carries the CE label.

Only applicable to North America:

The Cawomat 2000 IR has been constructed in accordance with the safety regulations UL Standard 1950 and UL 775, with CSA 22,2 N° 950 and with the regulations on radio interference suppression USA Standard FCC 47, Part 15, Class A.

Only applicable to North America: The Cawomat 2000 IR is UL and cUL certified.

Warning

The Cawomat 2000 IR generates, uses and can radiate radiofrequency energy and if not installed and used in accordance with the user manual, may cause interference with radio communications. The Cawomat 2000 IR has been tested and found to comply with the limits for a class A computing device pursuant to Subpart B of Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to take at his own expense whatever measures may be required to correct the interference.

Appendix B

Parts list and exploded views

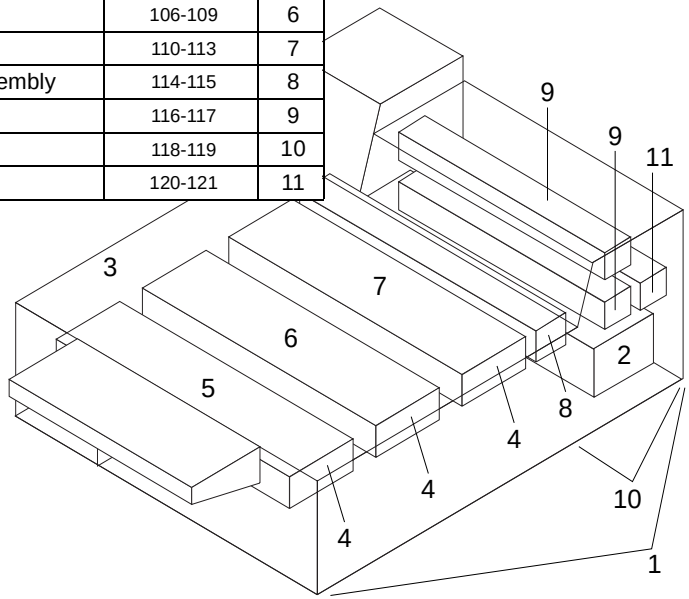
Spare parts list

Notes

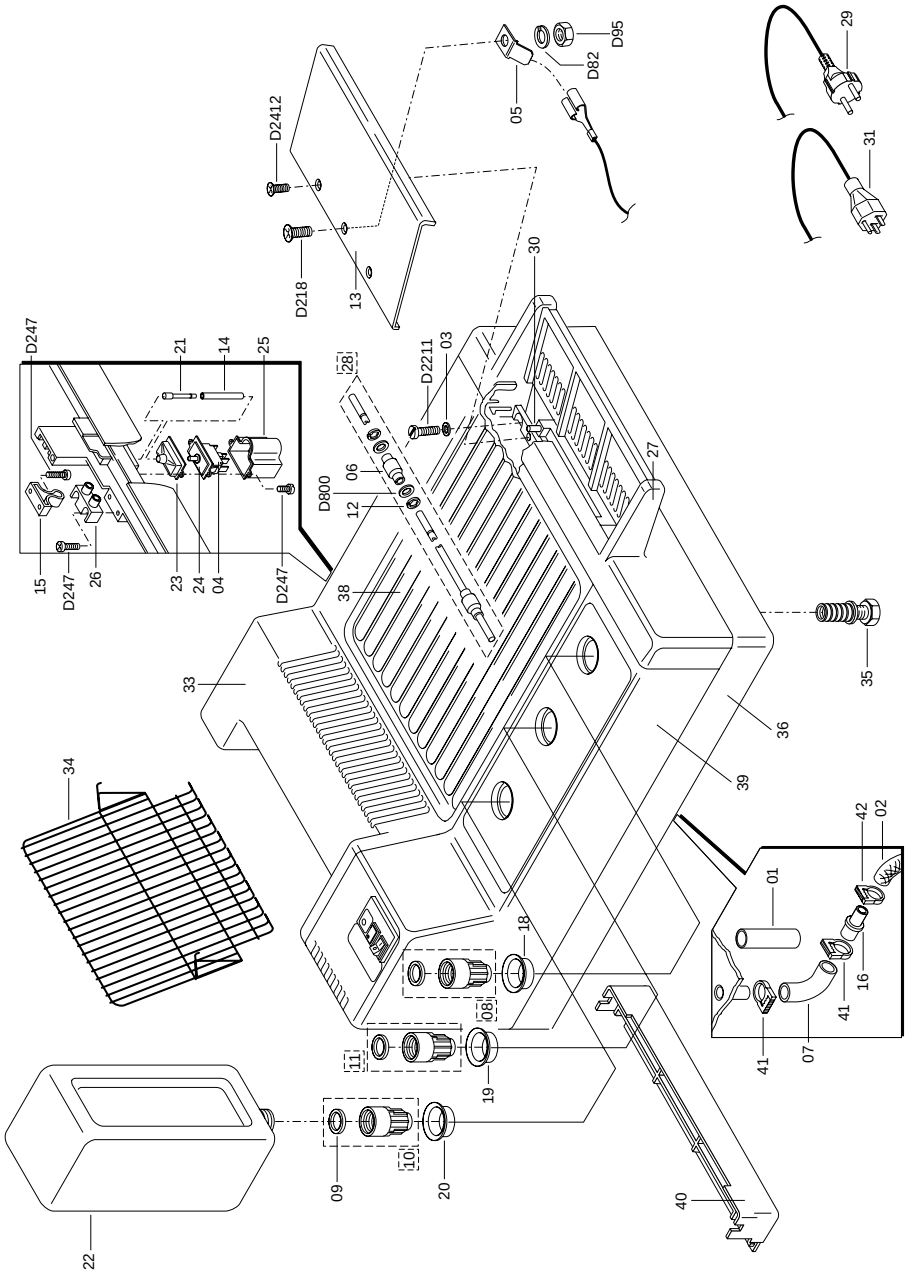
- *Electrical connections and repairs should only be made by authorised electricians. Mechanical connections and repairs should only be made by authorised technicians.*
- *D = Standardized part. For orders please refer to the separate spare parts list for standardised parts on page 130.*
- *Grey colored table cells indicate an assembly of parts, which are also indicated by dotted lines on the diagrams.*
- *Data and characteristics may be changed without notice.*

Location diagram

Assembly name	Pages	N°
Mounting rack	92-93	1
Electronic rack	94-95	2
Drive plate	96-99	3
Roller mounting diagram	100-101	4
Developer tank	102-105	5
Fixer tank	106-109	6
Water tank	110-113	7
Squeegee roller assembly	114-115	8
Cross-flow blower	116-117	9
Dryer section	118-119	10
Exit unit	120-121	11



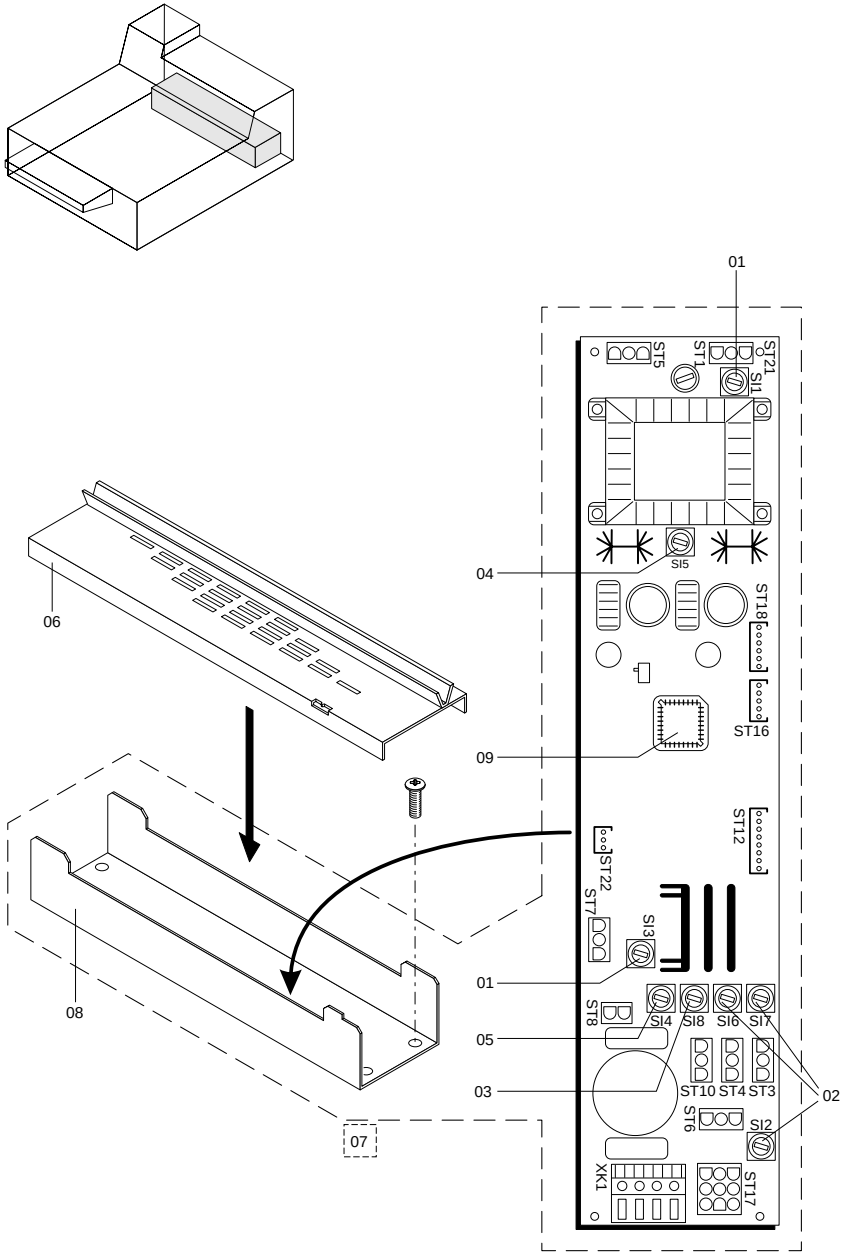
Mounting rack



Mounting rack

Item Nr	Part Code	Description
01	CM+0.0000.07.025	HOSE TRANS
02	CM+0.0000.64.055	HOSE TRANS
03	CM+7.0205.016.00	SREW LOCKING
04	CM+7.0426.6311.0	COVER SWITCH
05	CM+7.0471.7170.0	FLAT PLUG
06	CM+9.5220.1680.1	SCANNING ROLLER
07	CM+9.8896.2952.1	ELBOW
08	CM+9.9432.1070.5	RED VALVE (DEVELOPER REPLENISHMENT BOTTLE)
09	CM+9.9432.1075.1	GASKET
10	CM+9.9432.1090.5	WHITE VALVE (WATER REPLENISHMENT BOTTLE)
11	CM+9.9432.1110.5	BLUE VALVE (FIXER REPLENISHMENT BOTTLE)
12	CM+9.9432.3025.0	SNAP RING
13	CM+9.9462.1017.3	TABLE PLATE
14	CM+9.9462.1019.1	MEASURING PIN
15	CM+9.9462.1034.2	SNAP SPRING
16	CM+9.9462.1035.0	REDUCING PART
18	CM+9.9462.1043.0	RED BOTTLE RECEPTACLE (DEVELOPER)
19	CM+9.9462.1044.0	BLUE BOTTLE RECEPTACLE (FIXER)
20	CM+9.9462.1045.0	WHITE BOTTLE RECEPTACLE (WATER)
21	CM+9.9462.1052.2	PIN
22	CM+9.9462.6082.0	BOTTLE
23	CM+9.9462.1105.0	PROTECTING CAP
24	CM+9.9462.1106.0	HOLDER
25	CM+9.9462.1107.0	HOLDER
26	CM+9.9462.1111.1	SNAP CASE
27	CM+9.9463.1090.0	FEED TABLE
28	CM+9.9462.1520.0	FILM SCANNER
29	CM+9.9462.2566.0	CABLE UL
30	CM+9.9463.2950.0	SCANNING ROLLER
31	CM+9.9462.4566.0	CABLE UL
33	CM+9.9463.1062.0	DRYER COVER
34	CM+9.9463.1400.0	EXIT TRAY
35	CM+9.9462.6101.0	LEG
36	CM+9.9463.1120.0	CHASSIS
38	CM+9.9463.1042.0	PROCESSOR COVER
39	CM+9.9463.1072.0	GEAR COVER
40	CM+9.9462.1175.0	COVER
41	CM+7.0372.0040.0	HOSE CLAMP
42	CM+7.0371.7011.0	HOSE CLAMP

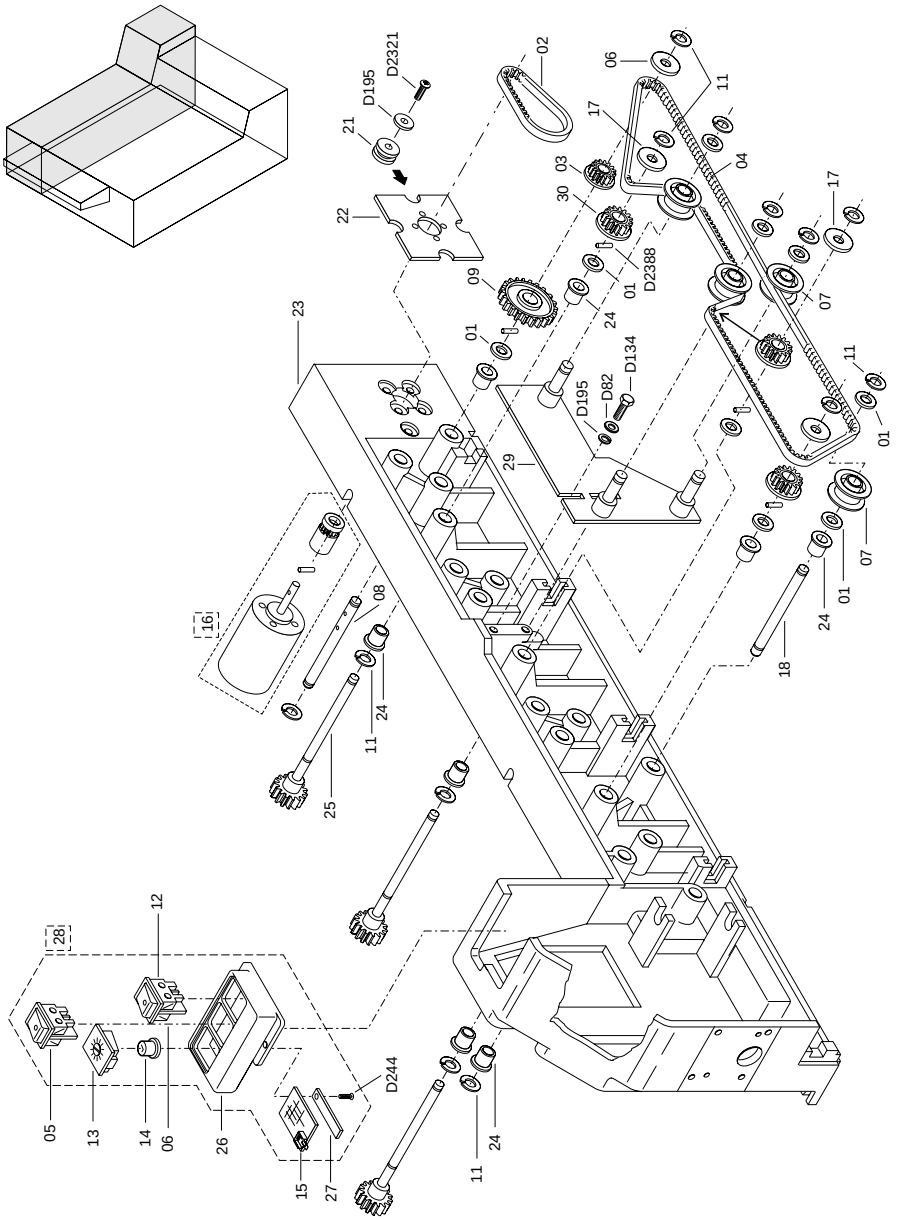
Electronic rack



Electronic rack

Item Nr	Part Code	Description
01	CM+7.0451.9608.0	FUSE
01	CM+7.0451.9604.0	FUSE
02	CM+7.0451.9630.0	FUSE
02	CM+7.0451.9707.0	FUSE
03	CM+7.0451.9706.0	FUSE
03	CM+7.0451.9727.0	FUSE
04	CM+7.0451.9716.0	FUSE
05	CM+7.0451.9720.0	FUSE
05	CM+7.0451.9705.0	FUSE
06	CM+9.9463.1460.0	COVER WELDED
07	CM+9.9463.9010.2	BOTTOM PART PREASS
08	CM+9.9463.1451.0	BOTTOM PART
09	CM+9.9463.2567.0	EPROM V 1102 for type 205/845
09	CM+9.9463.2817.0	EPROM V 1101 for type 285 (230 V 60 Hz)

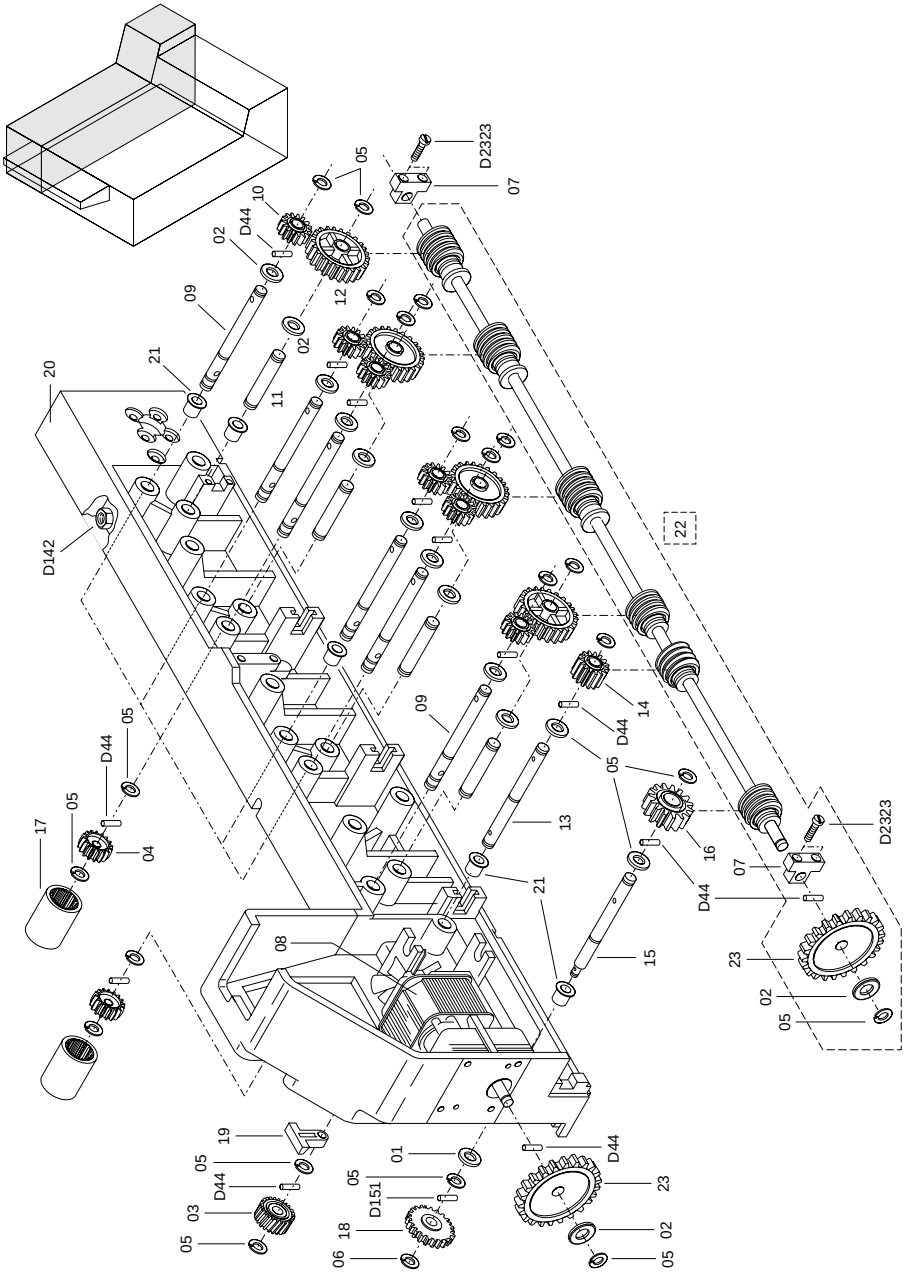
Drive plate 1/2



Drive plate 1/2

Item Nr	Part Code	Description
01	CM+7.0326.8910.0	WASHER
02	CM+7.0389.6536.0	MOTOR DRIVE BELT
03	CM+7.0389.5060.0	DRIVE GEAR WHEEL
04	CM+7.0389.6528.0	REPLENISHMENT PUMP DRIVE BELT
05	CM+7.0426.6061.0	ROCKER KEY
06	CM+9.8370.2828.0	ROCKER SWITCH
07	CM+9.9463.1305.0	ROLLER
08	CM+9.9462.1202.3	SHAFT
09	CM+9.9462.1219.1	TRANSFER GEAR
11	CM+9.9432.3025.0	SNAP RING
12	CM+7.0426.6138.0	ROCKER SWITCH
13	CM+9.9460.2561.0	COVER
14	CM+9.9460.2562.1	SETTING KNOB
15	CM+9.9460.2590.0	STEP SWITCH
16	CM+9.9463.1350.0	MOTOR (24V)
17	CM+9.8370.2848.0	WASHER / SPACER
18	CM+9.9462.1207.1	SHAFT
21	CM+9.9463.1301.0	RUBBER SLEEVE
22	CM+9.9463.1302.0	MOUNTING BRACKET
23	CM+9.9463.1320.0	DRIVE PLATE
24	CM+9.9462.1252.3	BUSHING
25	CM+9.9462.1260.4	PINION
26	CM+9.9463.1381.0	SWITCH ENCLOSURE
27	CM+9.9462.1282.0	PLATE
28	CM+9.9463.1380.0	SWITCH ENCLOSURE
29	CM+9.9463.1330.1	CLAMPING PLATE
30	CM+7.0389.5080.0	DRIVE GEAR

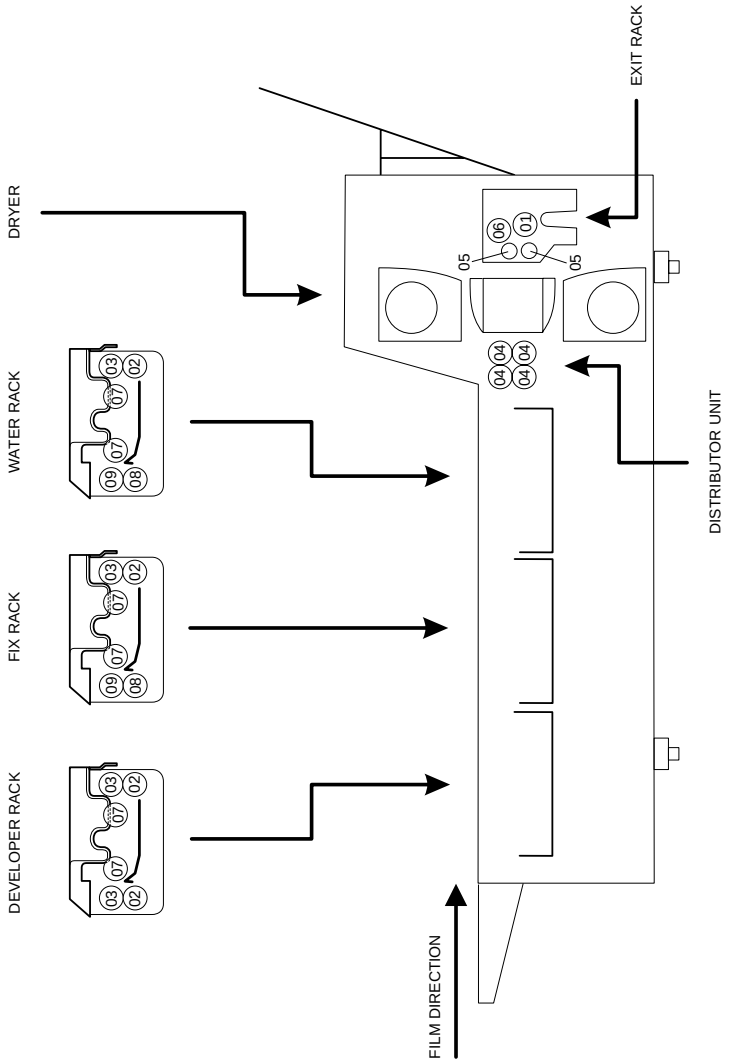
Drive plate (2/2)



Drive plate 2/2

Item Nr	Part Code	Description
01	CM+7.0326.8910.0	WASHER
02	CM+7.0327.3800.0	WASHER
03	CM+9.8187.6655.1	HELICAL SPUR GEAR
04	CM+9.9402.1101.1	SPUR GEAR
05	CM+9.9402.1129.0	SNAP RING
06	CM+9.9432.3025.0	SNAP RING
07	CM+9.9460.2258.0	BEARING
08	CM+7.0430.8280.0	GEAR MOTOR
	CM+7.0430.8281.0	GEAR MOTOR
	CM+7.0430.8289.0	GEAR MOTOR
09	CM+9.9462.1203.2	SHAFT
10	CM+9.9462.1204.0	HELICAL SPUR GEAR
11	CM+9.9462.1205.1	SHAFT
12	CM+9.9462.1206.0	HELICAL SPUR GEAR
13	CM+9.9462.1211.1	SHAFT
14	CM+9.9462.1212.0	HELICAL SPUR GEAR
15	CM+9.9462.1213.2	SHAFT
16	CM+9.9462.1214.0	HELICAL SPUR GEAR
17	CM+9.9462.1215.0	PIPE UNION
18	CM+9.9462.1218.0	SPUR GEAR
19	CM+9.9462.1221.1	PLATE
20	CM+9.9463.1320.0	DRIVE PLATE
21	CM+9.9462.1253.3	BUSHING
22	CM+9.9462.1270.1	DRIVE SHAFT
23	CM+9.9462.1275.0	SPUR GEAR

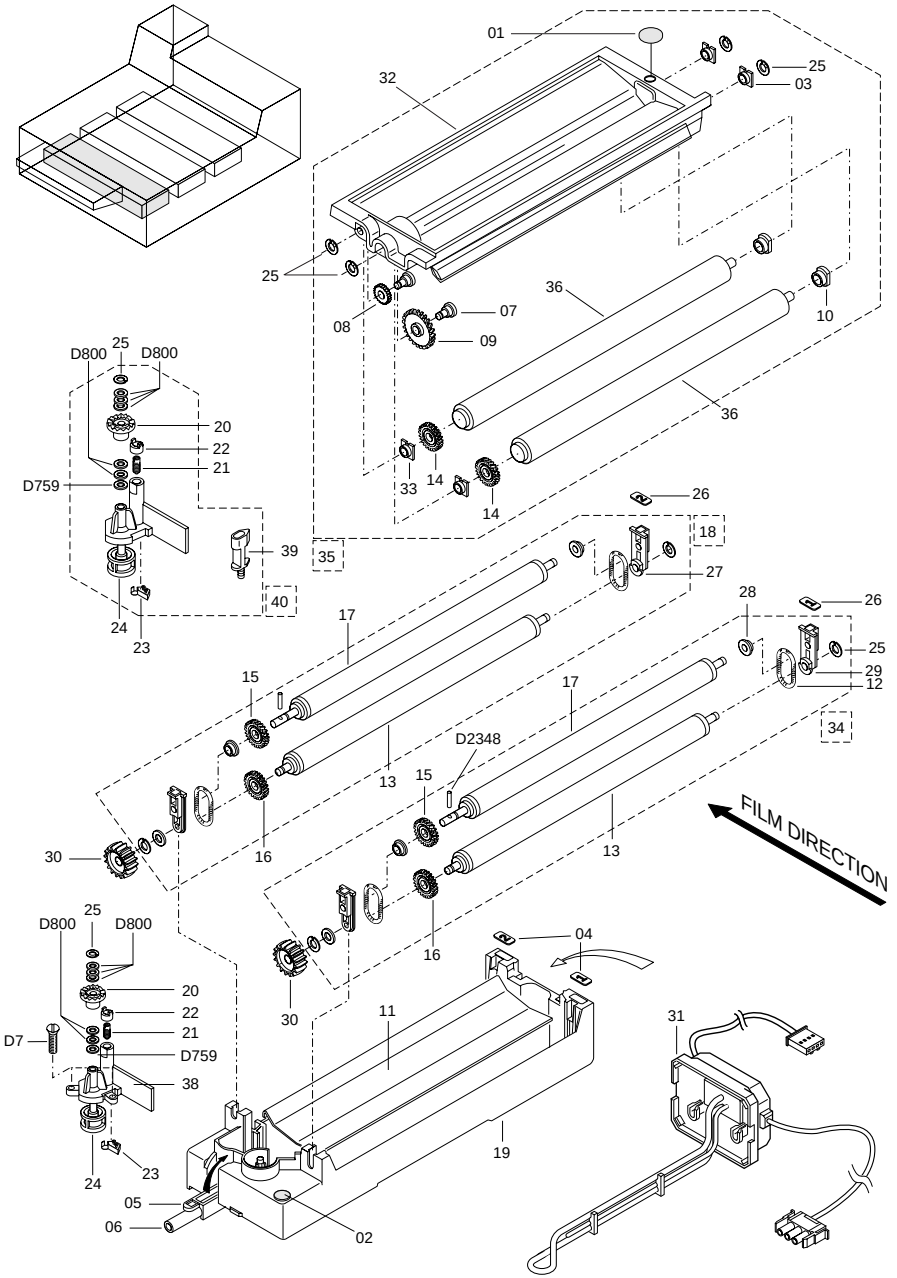
Roller mounting diagram



Roller mounting diagram

Item Nr	Part Code	Description
01	CM+9.9463.1250.0	ROLLER GRAY RUBBER
02	CM+9.9432.2110.3	ROLLER GRAY RUBBER
03	CM+9.9432.2150.4	ROLLER GRAY RUBBER
04	CM+9.9460.2330.1	ROLLER GRAY RUBBER
05	CM+9.9462.1380.0	ROLLER GRAY RUBBER
06	CM+9.9462.1410.0	ROLLER GRAY RUBBER
07	CM+9.9462.6220.1	ROLLER YELLOW PUR
08	CM+9.9462.6320.2	ROLLER YELLOW PUR
09	CM+9.9462.6360.2	ROLLER YELLOW PUR

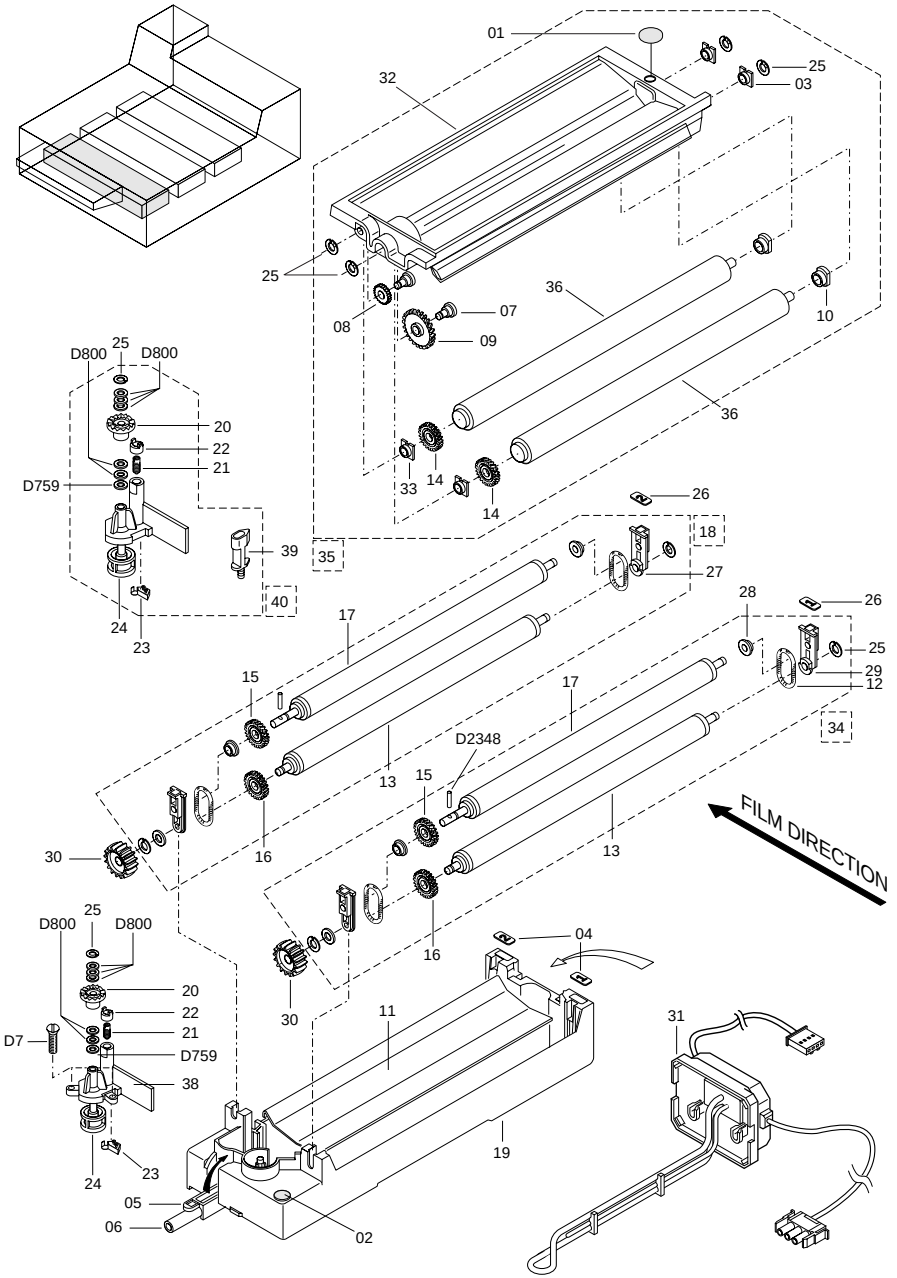
Developer tank



Developer tank

Item Nr	Part Code	Description
01	CM+7.0374.7294.0	LABEL (RED)
02	CM+7.0374.7298.0	LABEL (RED)
03	CM+9.9420.1201.0	BEARING
04	CM+9.9432.1006.1	NUMBER LABEL
05	CM+9.9432.2002.0	SWINGING BRACKET
06	CM+9.9432.2003.1	HOSE
07	CM+9.9432.2022.2	BEARING BOLT
08	CM+9.9432.2025.1	HELICAL SPUR GEAR
09	CM+9.9432.2026.1	HELICAL SPUR GEAR
10	CM+9.9432.2028.4	BUSHING
11	CM+9.9432.2090.1	GUIDE PLATE
12	CM+9.9432.2109.1	TENSION SPRING
13	CM+9.9432.2110.3	ROLLER
14	CM+9.9432.2111.0	HELICAL SPUR GEAR
15	CM+9.9432.2115.0	HELICAL SPUR GEAR
16	CM+9.9432.2116.0	HELICAL SPUR GEAR
17	CM+9.9432.2150.4	ROLLER
18	CM+9.9432.2180.4	ROLLER ASSEMBLY
19	CM+9.9463.2110.0	TANK
20	CM+9.9432.2854.2	CROWN GEAR
21	CM+9.9432.2859.0	SET SCREW
22	CM+9.9432.2861.0	NUT
23	CM+9.9432.2872.1	FILLER PLUG
24	CM+9.9432.2880.2	DRIVE WHEEL
25	CM+9.9432.3025.0	SNAP RING
26	CM+9.9441.1007.1	NUMBER LABEL
27	CM+9.9441.2052.1	BEARING
28	CM+9.9441.2053.0	BUSHING
29	CM+9.9441.2101.0	BEARING
30	CM+9.9462.1027.0	SPUR GEAR
31	CM+9.9463.1900.0	HEATER 230V/50HZ
	CM+9.9463.1950.0	ELECTRONIC HEATER 230V/50HZ
	CM+9.8370.2655.0	HEATER 120V/60HZ
	CM+9.9463.1930.0	ELECTRONIC HEATER 120V/60HZ
32	CM+9.9462.1611.1	ROLLER HOLDER
33	CM+9.9462.1612.0	BEARING
34	CM+9.9462.1620.0	ROLLER ASSEMBLY
35	CM+9.9462.6210.0	TANK COVER
36	CM+9.9462.6220.1	ROLLER

Developer tank



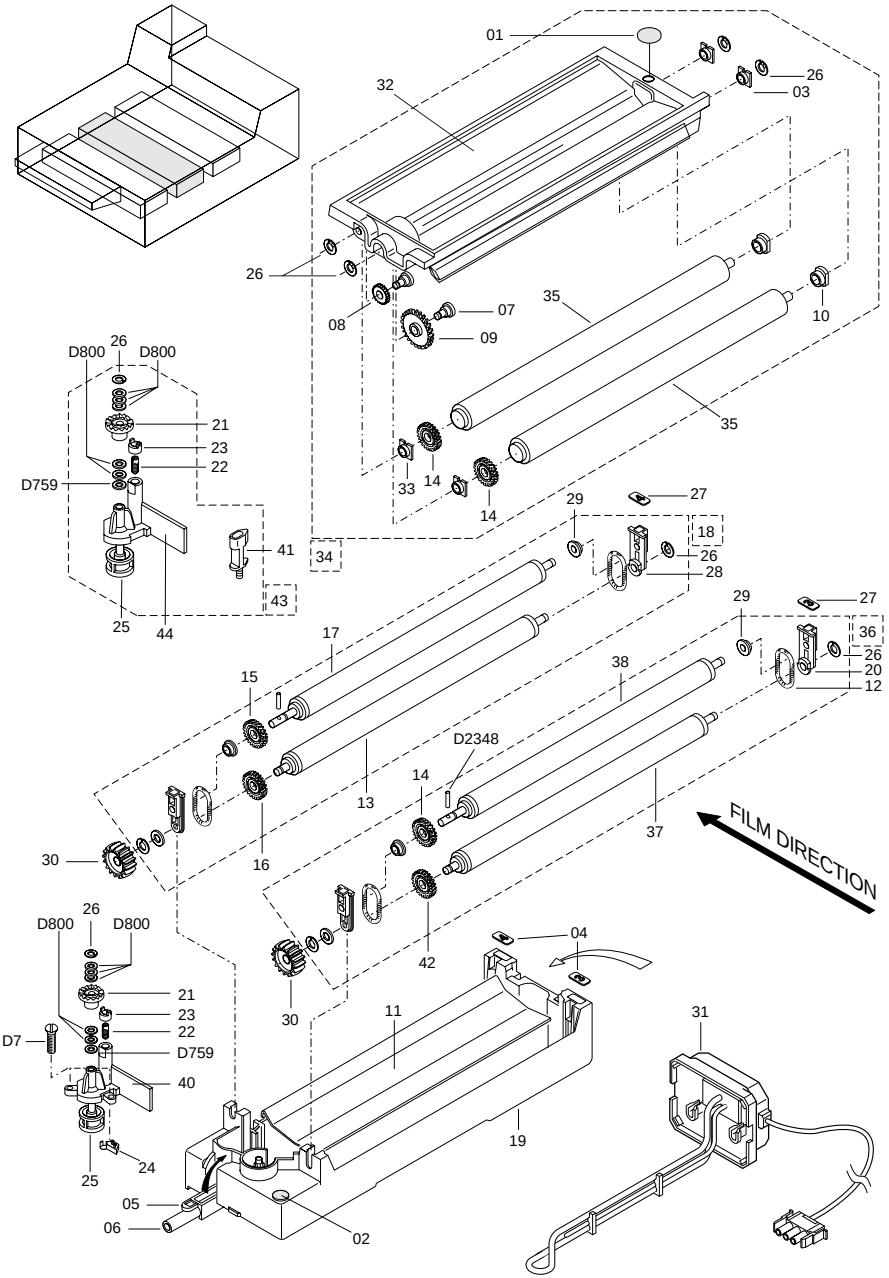
B

Parts List

Developer tank

Item Nr	Part Code	Description
38	CM+9.9463.1551.0	REPLENISHMENT PUMP BODY
39	CM+9.9432.2720.0	LATCH
40	CM+9.9462.9110.0	PUMP
41	CM+9.8370.2616.0	PUMP BODY

Fixer tank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FILM DIRECTION
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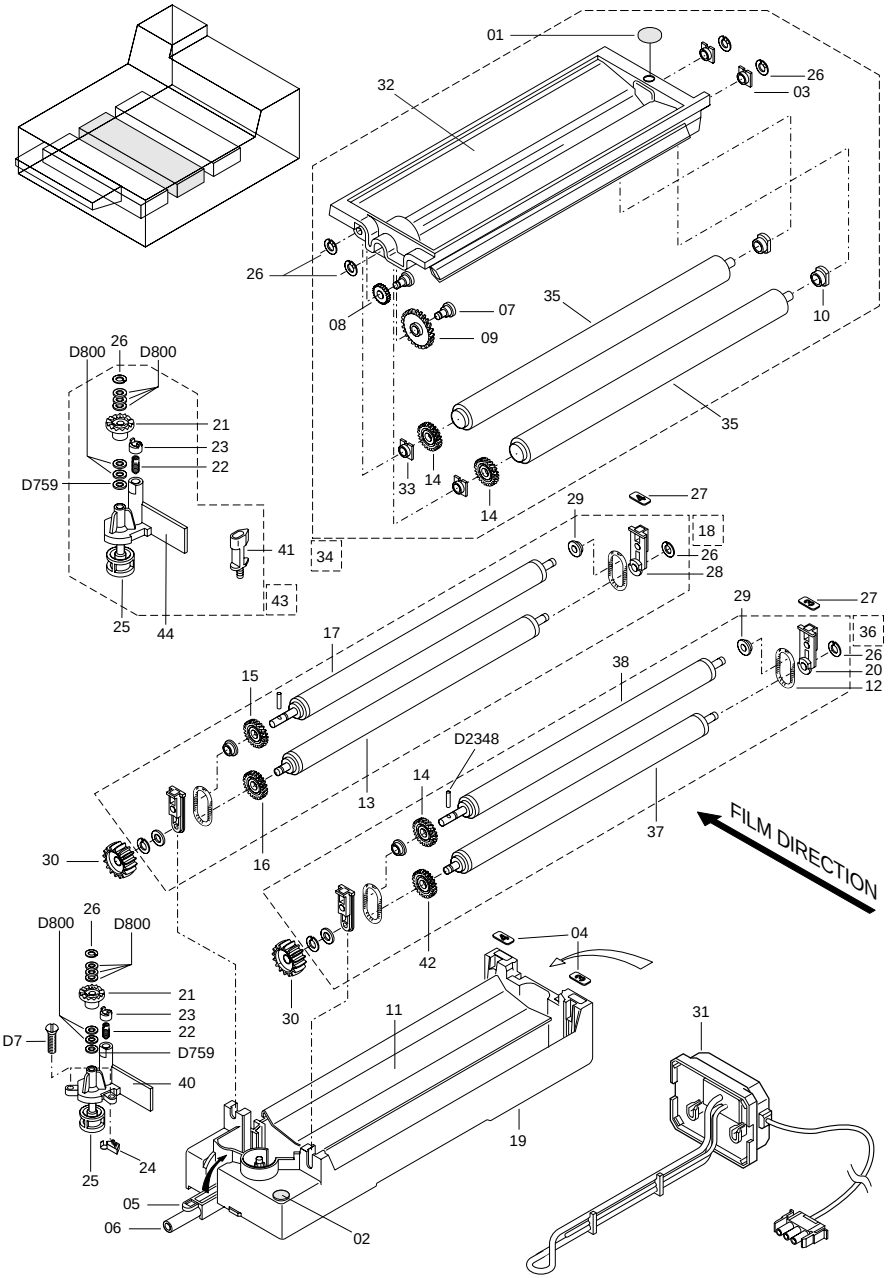
Fixer tank

Item Nr	Part Code	Description
01	CM+7.0374.7291.0	LABEL (BLUE)
02	CM+7.0374.7295.0	LABEL (BLUE)
03	CM+9.9420.1201.0	BEARING
04	CM+9.9432.1006.1	NUMBER LABEL
05	CM+9.9432.2002.0	SWINGING BRACKET
06	CM+9.9432.2003.1	HOSE
07	CM+9.9432.2022.2	BEARING BOLT
08	CM+9.9432.2025.1	HELICAL SPUR GEAR
09	CM+9.9432.2026.1	HELICAL SPUR GEAR
10	CM+9.9432.2028.4	BUSHING
11	CM+9.9432.2090.1	GUIDE PLATE
12	CM+9.9432.2109.1	TENSION SPRING
13	CM+9.9432.2110.3	ROLLER
14	CM+9.9432.2111.0	HELICAL SPUR GEAR
15	CM+9.9432.2115.0	HELICAL SPUR GEAR
16	CM+9.9432.2116.0	HELICAL SPUR GEAR
17	CM+9.9432.2150.4	ROLLER
18	CM+9.9432.2180.4	ROLLER
19	CM+9.9463.2110.0	TANK
20	CM+9.9432.2312.0	BEARING
21	CM+9.9432.2854.2	CROWN GEAR
22	CM+9.9432.2859.0	SET SCREW
23	CM+9.9432.2861.0	NUT
24	CM+9.9432.2872.1	FILLER PLUG
25	CM+9.9432.2880.2	DRIVE WHEEL
26	CM+9.9432.3025.0	SNAP RING
27	CM+9.9441.1007.1	NUMBER LABEL
28	CM+9.9441.2052.1	BEARING
29	CM+9.9441.2053.0	BUSHING
30	CM+9.9462.1027.0	SPUR GEAR
31	CM+9.9463.1900.0	HEATER 230V / 50HZ
	CM+9.8370.2655.0	HEATER 120V / 60HZ
32	CM+9.9462.1611.1	ROLLER HOLDER
33	CM+9.9462.1612.0	BEARING
34	CM+9.9462.6210.0	TANK COVER
35	CM+9.9462.6220.1	ROLLER
36	CM+9.9462.6310.0	ROLLER ASSEMBLY
37	CM+9.9462.6320.2	ROLLER
38	CM+9.9462.6360.2	ROLLER
40	CM+9.9463.1661.0	REPLENISHMENT PUMP BODY
41	CM+9.9462.2720.0	LATCH

Fixer tank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FILM DIRECTION
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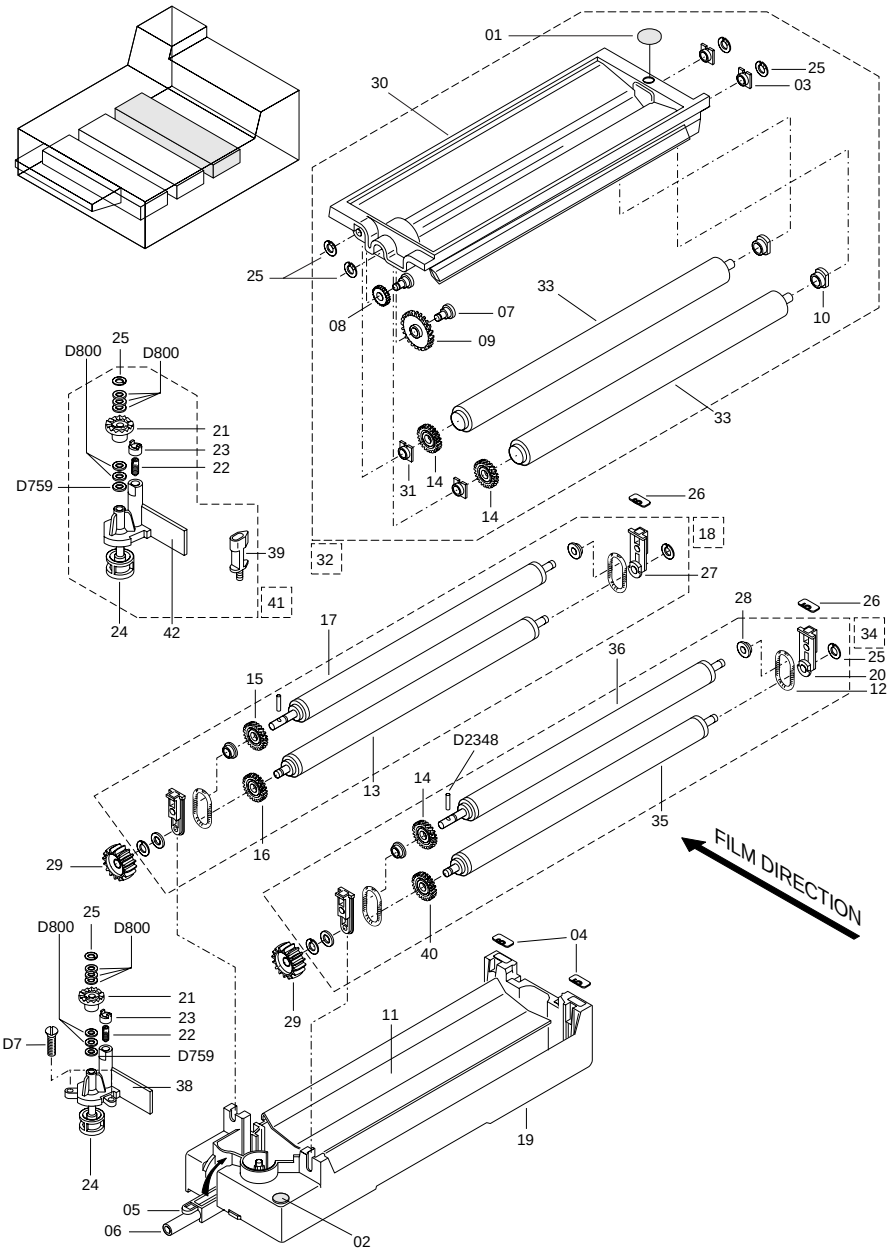
Fixer tank

Item Nr	Part Code	Description
42	CM+9.9432.2112.0	HELICAL SPUR GEAR
43	CM+9462.9120.0	PUMP
44	CM+9.9432.2870.2	PUMP BODY

Water tank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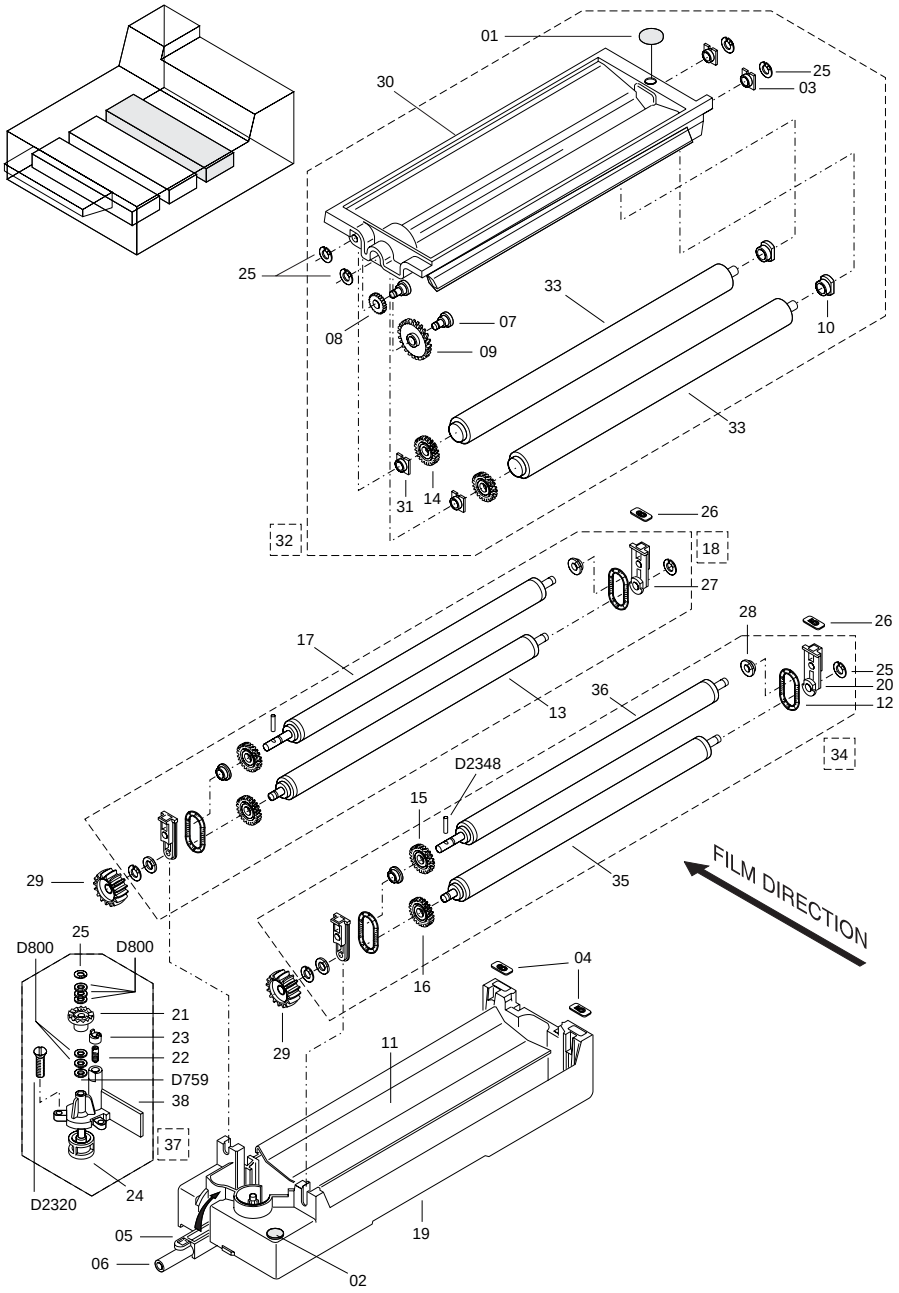
Water tank

Item Nr	Part Code	Description
01	CM+7.0374.7293.0	LABEL (WHITE)
02	CM+7.0374.7297.0	LABEL (WHITE)
03	CM+9.9420.1201.0	BEARING
04	CM+9.9432.1006.1	NUMBER LABEL
05	CM+9.9432.2002.0	SWINGING BRACKET
06	CM+9.9432.2003.1	HOSE
07	CM+9.9432.2022.2	BEARING BOLT
08	CM+9.9432.2025.1	HELICAL SPUR GEAR
09	CM+9.9432.2026.1	HELICAL SPUR GEAR
10	CM+9.9432.2028.4	BUSHING
11	CM+9.9432.2090.1	GUIDE PLATE
12	CM+9.9432.2109.1	TENSION SPRING
13	CM+9.9432.2110.3	ROLLER
14	CM+9.9432.2111.0	HELICAL SPUR GEAR
15	CM+9.9432.2115.0	HELICAL SPUR GEAR
16	CM+9.9432.2116.0	HELICAL SPUR GEAR
17	CM+9.9432.2150.4	ROLLER
18	CM+9.9432.2180.4	ROLLER ASSEMBLY
19	CM+9.9463.2310.0	TANK
20	CM+9.9432.2312.0	BEARING
21	CM+9.9432.2854.2	CROWN GEAR
22	CM+9.9432.2859.0	SET SCREW
23	CM+9.9432.2861.0	NUT
24	CM+9.9432.2880.2	DRIVE WHEEL
25	CM+9.9432.3025.0	SNAP RING
26	CM+9.9441.1007.1	NUMBER LABEL
27	CM+9.9441.2052.1	BEARING
28	CM+9.9441.2053.0	BUSHING
29	CM+9.9462.1027.0	SPUR GEAR
30	CM+9.9462.1611.1	ROLLER HOLDER
31	CM+9.9462.1612.0	BEARING
32	CM+9.9462.6210.0	TANK COVER ASSEMBLY
33	CM+9.9462.6220.1	ROLLER
34	CM+9.9462.6310.0	ROLLER ASSEMBLY
35	CM+9.9462.6320.2	ROLLER
36	CM+9.9462.6360.2	ROLLER
38	CM+9.9463.1751.0	REPLENISHMENT PUMP BODY
39	CM+9.9432.2720.0	LATCH

Water tank



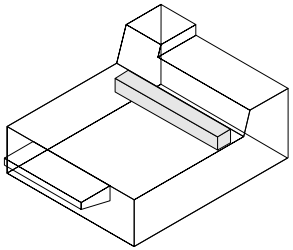
B

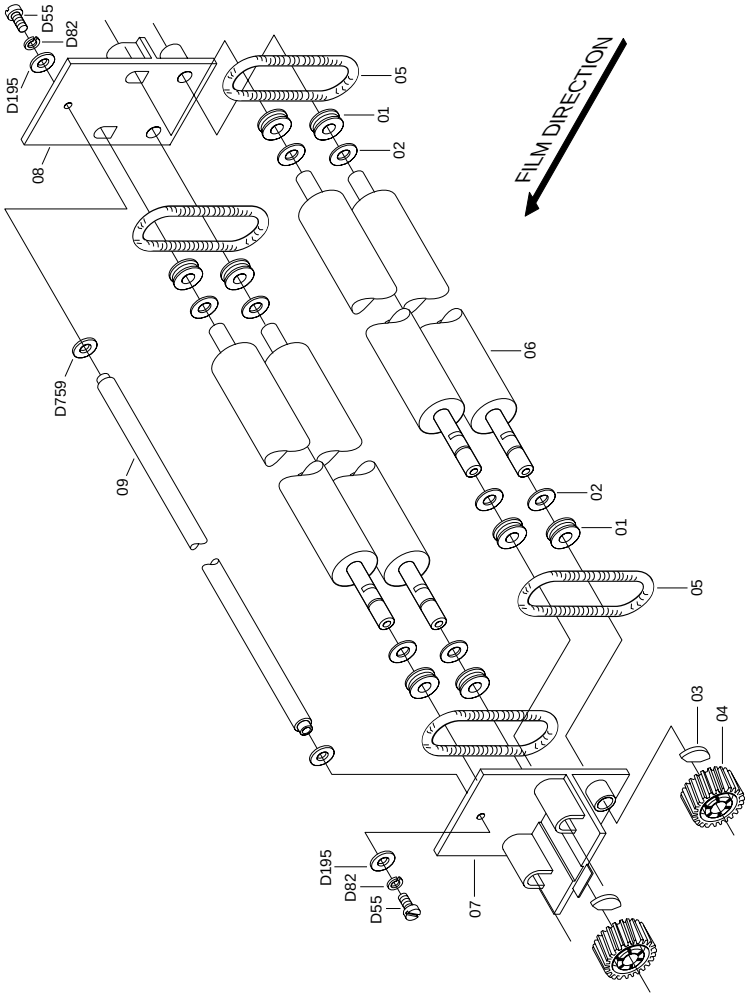
Parts List

Water tank

Item Nr	Part Code	Description
40	CM+9.9432.2112.0	HELICAL SPUR GEAR
41	CM+9.9462.9130.0	PUMP
42	CM+9.9432.2922.3	PUMP BODY

Squeegee roller assembly

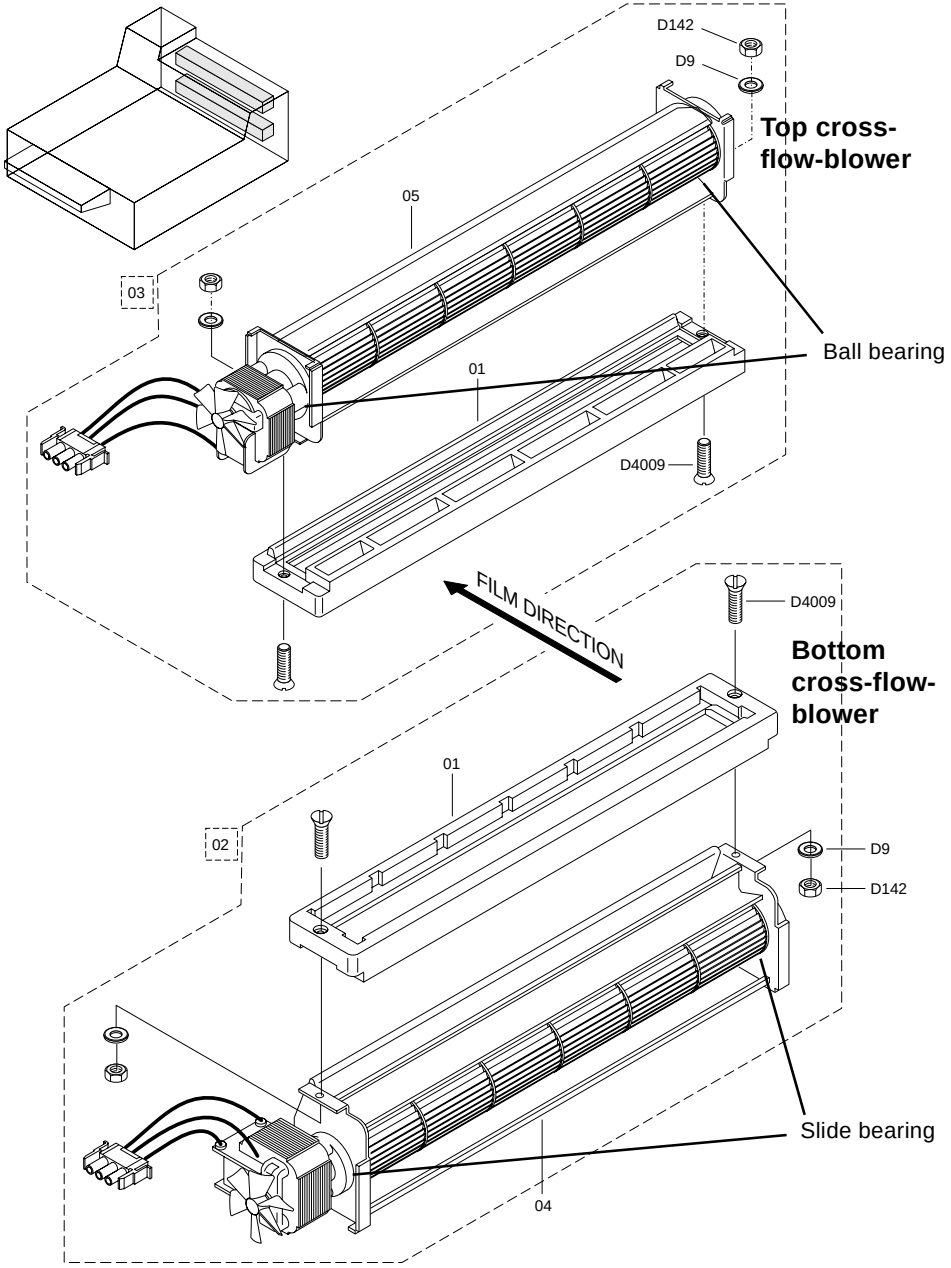




Squeegee roller assembly

Item Nr	Part Code	Description
01	CM+9.8155.4401.4	GROOVED BUSH
02	CM+9.8157.6225.0	WASHER
03	CM+9.8187.6862.1	SEGMENT
04	CM+9.8187.6863.0	HELICAL SPUR GEAR
05	CM+9.9432.2109.1	TENSION SPRING
06	CM+9.9460.2330.0	ROLLER
07	CM+9.9462.6901.1	BEARING PLATE
08	CM+9.9462.6902.1	BEARING PLATE
09	CM+9.9462.6903.0	ROD

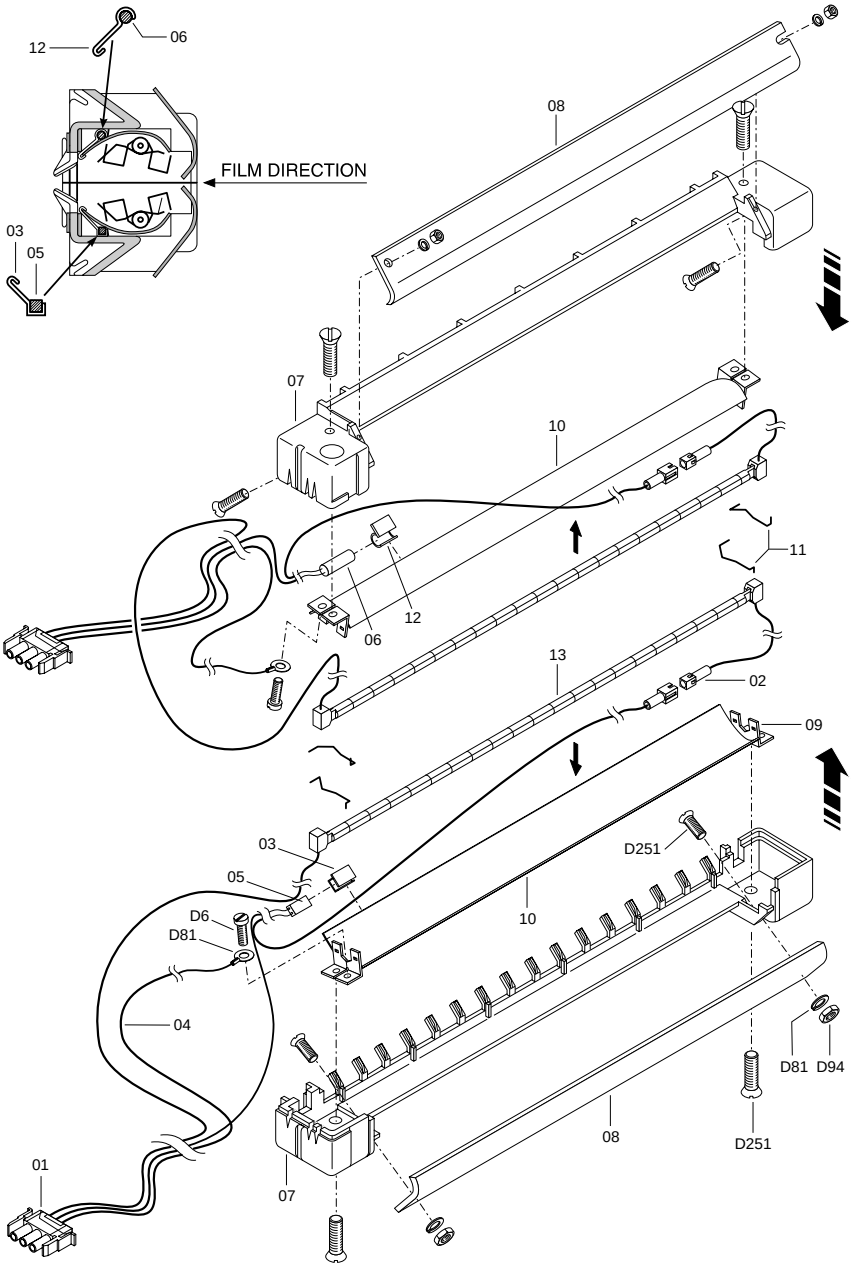
Cross-flow blower



Cross-flow blower

Item Nr	Part Code	Description
01	CM+9.9462.1021.0	MOUNTING PLATE
02	CM+9.9462.1880.0	CROSS-FLOW BLOWER 230V / 50HZ
	CM+9.9462.4180.0	CROSS-FLOW BLOWER 120V / 60HZ
03	CM+9.9463.2050.0	CROSS-FLOW BLOWER 230V / 50HZ
	CM+9.9463.2070.0	CROSS-FLOW BLOWER 120V / 60HZ
04	CM+9.9462.2685.0	CROSS-FLOW BLOWER 230V / 50HZ
	CM+9.9462.4685.0	CROSS-FLOW BLOWER 120V / 60HZ
05	CM+7.0431.7187.0	CROSS-FLOW BLOWER 230V / 50HZ
	CM+7.0431.7188.0	CROSS-FLOW BLOWER 120V / 60HZ

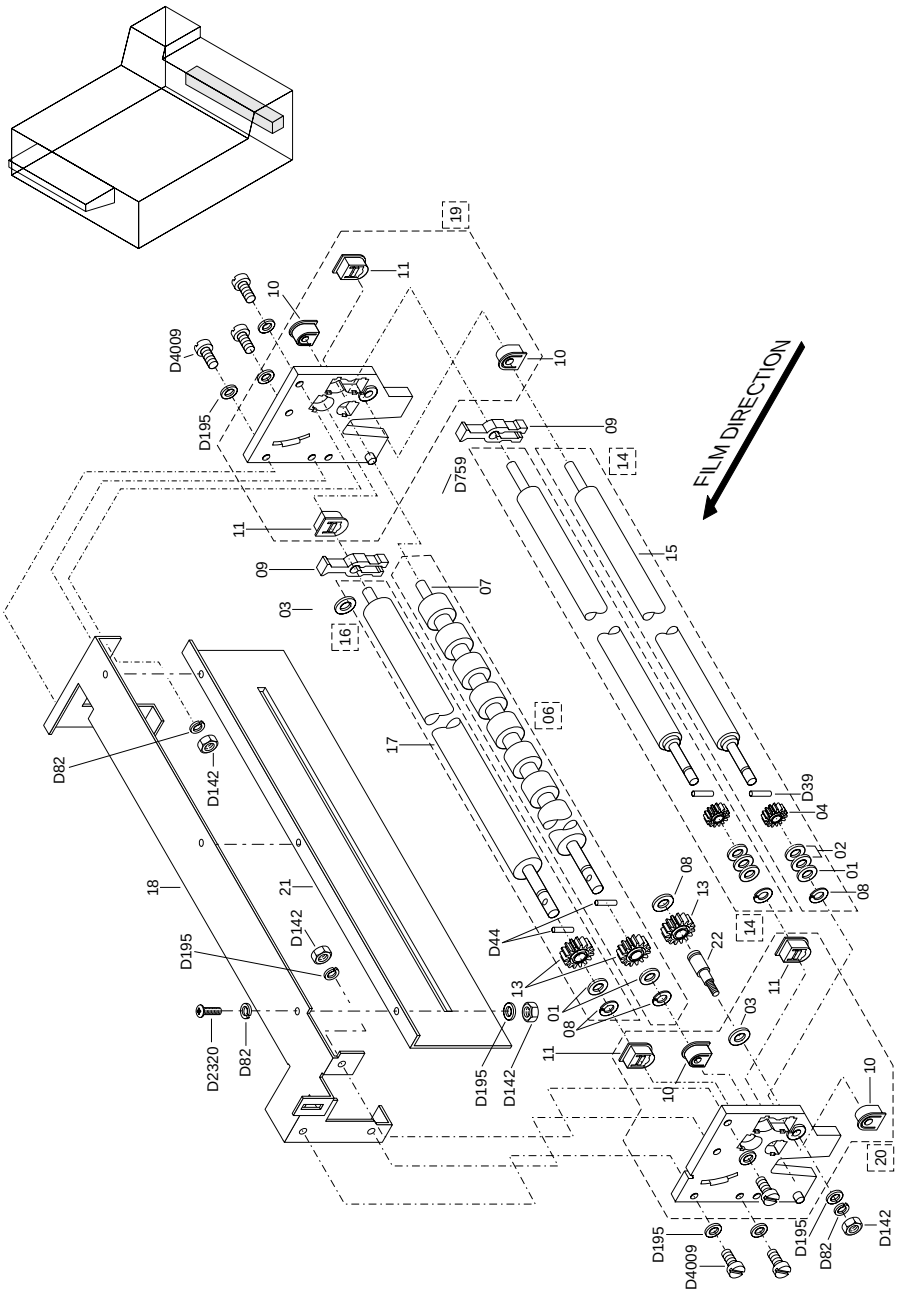
Dryer section



Dryer section

Item Nr	Part Code	Description
01	CM+7.0471.1327.0	PLUG HOUSING
02	CM+7.0471.1351.0	PLUG HOUSING
03	CM+9.8149.6801.0	SPRING BOW
04	CM+9.8149.6826.0	CABLE
05	CM+9.8149.6830.0	OVERHEAT PROTECTION 90°C
06	CM+9.8149.6910.0	OVERHEAT PROTECTION 109°C
07	CM+9.8187.6911.2	IR HOUSING SHELL
08	CM+9.8187.6912.0	GUIDE PLATE
09	CM+9.8187.6913.0	HOLDER
10	CM+9.8187.6914.0	REFLECTOR
11	CM+9.8187.6916.0	SPRING BOW
12	CM+9.8187.6917.0	SPRING BOW
13	CM+9.8187.6921.2	110 V / 400 W IR LAMP
	CM+9.9462.4315.2	110V / 630W UL IR LAMP

Exit unit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D195
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Exit unit

Item Nr	Part Code	Description
01	CM+7.0327.3800.0	WASHER
02	CM+7.0329.6050.0	WASHER
03	CM+9.8185.6037.0	WASHER
04	CM+9.8352.1572.1	SPUR GEAR
06	CM+9.9463.1260.0	ROLLER ASSEMBLY
07	CM+9.9463.1250.0	ROLLER
08	CM+9.9402.1129.0	SNAP RING
09	CM+9.9463.1205.0	CLAMP
10	CM+9.9460.2105.0	BEARING
11	CM+9.9460.2106.0	BEARING
13	CM+9.9462.1354.1	SPUR GEAR
14	CM+9.9462.1370.0	ROLLER ASSEMBLY
15	CM+9.9462.1380.0	ROLLER
16	CM+9.9462.1400.0	ROLLER ASSEMBLY
17	CM+9.9462.1410.0	ROLLER
18	CM+9.9463.1201.0	COVER
19	CM+9.9463.1220.1	PLATE ASSEMBLY
20	CM+9.9463.1240.1	PLATE ASSEMBLY
21	CM+9.9463.1211.0	COVER
22	CM+9.9462.1353.1	BOLT

Parts list (sorted on part code)

Part code	Description	Page	Item
CM+0.0000.07.025	HOSE TRANS	93	01
CM+0.0000.64.055	HOSE TRANS	93	02
CM+7.0205.016.00	SREW LOCKING	93	03
CM+7.0326.8910.0	WASHER	97	01
CM+7.0326.8910.0	WASHER	99	01
CM+7.0327.3800.0	WASHER	99	02
CM+7.0327.3800.0	WASHER	121	01
CM+7.0329.6050.0	WASHER	121	02
CM+7.0371.7011.0	HOSE CLAMP	93	42
CM+7.0372.0040.0	HOSE CLAMP	93	41
CM+7.0374.7291.0	LABEL (BLUE)	109	01
CM+7.0374.7293.0	LABEL (WHITE)	111	01
CM+7.0374.7294.0	LABEL (RED)	103	01
CM+7.0374.7295.0	LABEL (BLUE)	109	02
CM+7.0374.7297.0	LABEL (WHITE)	111	02
CM+7.0374.7298.0	LABEL (RED)	103	02
CM+7.0389.5060.0	DRIVE GEAR WHEEL	97	03
CM+7.0389.5080.0	DRIVE GEAR	97	30
CM+7.0389.6528.0	REPLENISHMENT PUMP DRIVE BELT	97	04
CM+7.0389.6536.0	MOTOR DRIVE BELT	97	02
CM+7.0426.6061.0	ROCKER KEY	97	05
CM+7.0426.6138.0	ROCKER SWITCH	97	12
CM+7.0426.6311.0	COVER SWITCH	93	04
CM+7.0430.8280.0	GEAR MOTOR	99	08
CM+7.0430.8281.0	GEAR MOTOR	99	08
CM+7.0430.8289.0	GEAR MOTOR	99	08
CM+7.0431.7187.0	CROSS-FLOW BLOWER 230V / 50HZ	117	05
CM+7.0431.7188.0	CROSS-FLOW BLOWER 120V / 60HZ	117	05
CM+7.0451.9604.0	FUSE	95	01
CM+7.0451.9608.0	FUSE	95	01
CM+7.0451.9630.0	FUSE	95	02
CM+7.0451.9705.0	FUSE	95	05
CM+7.0451.9706.0	FUSE	95	03
CM+7.0451.9707.0	FUSE	95	02
CM+7.0451.9716.0	FUSE	95	04
CM+7.0451.9720.0	FUSE	95	05
CM+7.0451.9727.0	FUSE	95	03
CM+7.0471.1327.0	PLUG HOUSING	119	01
CM+7.0471.1351.0	PLUG HOUSING	119	02

Part code	Description	Page	Item
CM+7.0471.7170.0	FLAT PLUG	93	05
CM+9.5220.1680.1	SCANNING ROLLER	93	06
CM+9.8149.6801.0	SPRING BOW	119	03
CM+9.8149.6826.0	CABLE	119	04
CM+9.8149.6830.0	OVERHEAT PROTECTION 90°C	119	05
CM+9.8149.6910.0	OVERHEAT PROTECTION 109°C	119	06
CM+9.8155.4401.4	GROOVED BUSH	115	01
CM+9.8157.6225.0	WASHER	115	02
CM+9.8185.6037.0	WASHER	121	03
CM+9.8187.6655.1	HELICAL SPUR GEAR	99	03
CM+9.8187.6862.1	SEGMENT	115	03
CM+9.8187.6863.0	HELICAL SPUR GEAR	115	04
CM+9.8187.6911.2	IR HOUSING SHELL	119	07
CM+9.8187.6912.0	GUIDE PLATE	119	08
CM+9.8187.6913.0	HOLDER	119	09
CM+9.8187.6914.0	REFLECTOR	119	10
CM+9.8187.6916.0	SPRING BOW	119	11
CM+9.8187.6917.0	SPRING BOW	119	12
CM+9.8187.6921.2	110 V / 400 W IR LAMP	119	13
CM+9.8352.1572.1	SPUR GEAR	121	04
CM+9.8370.2616.0	PUMP BODY	105	41
CM+9.8370.2655.0	HEATER 120V / 60HZ	109	31
CM+9.8370.2655.0	HEATER 120V/60HZ	103	31
CM+9.8370.2828.0	ROCKER SWITCH	97	06
CM+9.8370.2848.0	WASHER / SPACER	97	17
CM+9.8896.2952.1	ELBOW	93	07
CM+9.9402.1101.1	SPUR GEAR	99	04
CM+9.9402.1129.0	SNAP RING	99	05
CM+9.9402.1129.0	SNAP RING	121	08
CM+9.9420.1201.0	BEARING	103	03
CM+9.9420.1201.0	BEARING	109	03
CM+9.9420.1201.0	BEARING	111	03
CM+9.9432.1006.1	NUMBER LABEL	103	04
CM+9.9432.1006.1	NUMBER LABEL	109	04
CM+9.9432.1006.1	NUMBER LABEL	111	04
CM+9.9432.1070.5	RED VALVE (DEVELOPER REPLENISHMENT BOTTLE)	93	08
CM+9.9432.1075.1	GASKET	93	09
CM+9.9432.1090.5	WHITE VALVE (WATER REPLENISHMENT BOTTLE)	93	10
CM+9.9432.1110.5	BLUE VALVE (FIXER REPLENISHMENT BOTTLE)	93	11
CM+9.9432.2002.0	SWINGING BRACKET	103	05

Part code	Description	Page	Item
CM+9.9432.2002.0	SWINGING BRACKET	109	05
CM+9.9432.2002.0	SWINGING BRACKET	111	05
CM+9.9432.2003.1	HOSE	103	06
CM+9.9432.2003.1	HOSE	109	06
CM+9.9432.2003.1	HOSE	111	06
CM+9.9432.2022.2	BEARING BOLT	103	07
CM+9.9432.2022.2	BEARING BOLT	109	07
CM+9.9432.2022.2	BEARING BOLT	111	07
CM+9.9432.2025.1	HELICAL SPUR GEAR	103	08
CM+9.9432.2025.1	HELICAL SPUR GEAR	109	08
CM+9.9432.2025.1	HELICAL SPUR GEAR	111	08
CM+9.9432.2026.1	HELICAL SPUR GEAR	103	09
CM+9.9432.2026.1	HELICAL SPUR GEAR	109	09
CM+9.9432.2026.1	HELICAL SPUR GEAR	111	09
CM+9.9432.2028.4	BUSHING	103	10
CM+9.9432.2028.4	BUSHING	109	10
CM+9.9432.2028.4	BUSHING	111	10
CM+9.9432.2090.1	GUIDE PLATE	103	11
CM+9.9432.2090.1	GUIDE PLATE	109	11
CM+9.9432.2090.1	GUIDE PLATE	111	11
CM+9.9432.2109.1	TENSION SPRING	103	12
CM+9.9432.2109.1	TENSION SPRING	109	12
CM+9.9432.2109.1	TENSION SPRING	111	12
CM+9.9432.2109.1	TENSION SPRING	115	05
CM+9.9432.2110.3	ROLLER	101	02
CM+9.9432.2110.3	ROLLER	103	13
CM+9.9432.2110.3	ROLLER	109	13
CM+9.9432.2110.3	ROLLER	111	13
CM+9.9432.2111.0	HELICAL SPUR GEAR	103	14
CM+9.9432.2111.0	HELICAL SPUR GEAR	109	14
CM+9.9432.2111.0	HELICAL SPUR GEAR	111	14
CM+9.9432.2112.0	HELICAL SPUR GEAR	109	42
CM+9.9432.2112.0	HELICAL SPUR GEAR	113	40
CM+9.9432.2115.0	HELICAL SPUR GEAR	103	15
CM+9.9432.2115.0	HELICAL SPUR GEAR	109	15
CM+9.9432.2115.0	HELICAL SPUR GEAR	111	15
CM+9.9432.2116.0	HELICAL SPUR GEAR	103	16
CM+9.9432.2116.0	HELICAL SPUR GEAR	109	16
CM+9.9432.2116.0	HELICAL SPUR GEAR	111	16
CM+9.9432.2150.4	ROLLER	101	03
CM+9.9432.2150.4	ROLLER	103	17

Part code	Description	Page	Item
CM+9.9432.2150.4	ROLLER	109	17
CM+9.9432.2150.4	ROLLER	111	17
CM+9.9432.2180.4	ROLLER	109	18
CM+9.9432.2180.4	ROLLER ASSEMBLY	103	18
CM+9.9432.2180.4	ROLLER ASSEMBLY	111	18
CM+9.9432.2312.0	BEARING	109	20
CM+9.9432.2312.0	BEARING	111	20
CM+9.9432.2720.0	LATCH	105	39
CM+9.9432.2720.0	LATCH (OPTION)	111	39
CM+9.9432.2854.2	CROWN GEAR	103	20
CM+9.9432.2854.2	CROWN GEAR	109	21
CM+9.9432.2854.2	CROWN GEAR	111	21
CM+9.9432.2859.0	SET SCREW	103	21
CM+9.9432.2859.0	SET SCREW	109	22
CM+9.9432.2859.0	SET SCREW	111	22
CM+9.9432.2861.0	NUT	103	22
CM+9.9432.2861.0	NUT	109	23
CM+9.9432.2861.0	NUT	111	23
CM+9.9432.2870.2	PUMP BODY (OPTION)	109	44
CM+9.9432.2872.1	FILLER PLUG	103	23
CM+9.9432.2872.1	FILLER PLUG	109	24
CM+9.9432.2880.2	DRIVE WHEEL	103	24
CM+9.9432.2880.2	DRIVE WHEEL	109	25
CM+9.9432.2880.2	DRIVE WHEEL	111	24
CM+9.9432.2922.3	PUMP BODY (OPTION)	113	42
CM+9.9432.3025.0	RETAINER RING	109	26
CM+9.9432.3025.0	SNAP RING	93	12
CM+9.9432.3025.0	SNAP RING	97	11
CM+9.9432.3025.0	SNAP RING	99	06
CM+9.9432.3025.0	SNAP RING	103	25
CM+9.9432.3025.0	SNAP RING	111	25
CM+9.9441.1007.1	NUMBER LABEL	103	26
CM+9.9441.1007.1	NUMBER LABEL	109	27
CM+9.9441.1007.1	NUMBER LABEL	115	26
CM+9.9441.2052.1	BEARING	103	27
CM+9.9441.2052.1	BEARING	109	28
CM+9.9441.2052.1	BEARING	111	27
CM+9.9441.2053.0	BUSHING	103	28
CM+9.9441.2053.0	BUSHING	109	29
CM+9.9441.2053.0	BUSHING	111	28
CM+9.9441.2101.0	BEARING	103	29

Part code	Description	Page	Item
CM+9.9460.2105.0	BEARING	121	10
CM+9.9460.2106.0	BEARING	121	11
CM+9.9460.2258.0	BEARING	99	07
CM+9.9460.2330.1	ROLLER	101	04
CM+9.9460.2330.1	ROLLER	115	06
CM+9.9460.2561.0	COVER	97	13
CM+9.9460.2562.1	SETTING KNOB	97	14
CM+9.9460.2590.0	STEP SWITCH	97	15
CM+9.9462.1017.3	TABLE PLATE	93	13
CM+9.9462.1019.1	MEASURING PIN	93	14
CM+9.9462.1021.0	MOUNTING PLATE	117	01
CM+9.9462.1027.0	SPUR GEAR	103	30
CM+9.9462.1027.0	SPUR GEAR	109	30
CM+9.9462.1027.0	SPUR GEAR	111	29
CM+9.9462.1034.2	SNAP SPRING	93	15
CM+9.9462.1035.0	REDUCING PART	93	16
CM+9.9462.1043.0	RED BOTTLE RECEPTACLE (DEVELOPER)	93	18
CM+9.9462.1044.0	BLUE BOTTLE RECEPTACLE (FIXER)	93	19
CM+9.9462.1045.0	WHITE BOTTLE RECEPTACLE (WATER)	93	20
CM+9.9462.1052.2	PIN	93	21
CM+9.9462.1105.0	PROTECTING CAP	93	23
CM+9.9462.1106.0	HOLDER	93	24
CM+9.9462.1107.0	HOLDER	93	25
CM+9.9462.1111.1	SNAP CASE	93	26
CM+9.9462.1175.0	COVER	93	40
CM+9.9462.1202.3	SHAFT	97	08
CM+9.9462.1203.2	SHAFT	99	09
CM+9.9462.1204.0	HELICAL SPUR GEAR	99	10
CM+9.9462.1205.1	SHAFT	99	11
CM+9.9462.1206.0	HELICAL SPUR GEAR	99	12
CM+9.9462.1207.1	SHAFT	97	18
CM+9.9462.1211.1	SHAFT	99	13
CM+9.9462.1212.0	HELICAL SPUR GEAR	99	14
CM+9.9462.1213.2	SHAFT	99	15
CM+9.9462.1214.0	HELICAL SPUR GEAR	99	16
CM+9.9462.1215.0	PIPE UNION	99	17
CM+9.9462.1218.0	SPUR GEAR	99	18
CM+9.9462.1219.1	TRANSFER GEAR	97	09
CM+9.9462.1221.1	PLATE	99	19
CM+9.9462.1252.3	BUSHING	97	24
CM+9.9462.1253.3	BUSHING	99	21

Part code	Description	Page	Item
CM+9.9462.1260.4	PINION	97	25
CM+9.9462.1270.1	DRIVE SHAFT	99	22
CM+9.9462.1275.0	SPUR GEAR	99	23
CM+9.9462.1282.0	PLATE	97	27
CM+9.9462.1353.1	BOLT	121	22
CM+9.9462.1354.1	SPUR GEAR	121	13
CM+9.9462.1370.0	ROLLER ASSEMBLY	121	14
CM+9.9462.1380.0	ROLLER	101	05
CM+9.9462.1380.0	ROLLER	121	15
CM+9.9462.1400.0	ROLLER ASSEMBLY	121	16
CM+9.9462.1410.0	ROLLER	101	06
CM+9.9462.1410.0	ROLLER	121	17
CM+9.9462.1520.0	FILM SCANNER	93	28
CM+9.9462.1611.1	ROLLER HOLDER	103	32
CM+9.9462.1611.1	ROLLER HOLDER	107	32
CM+9.9462.1611.1	ROLLER HOLDER	111	30
CM+9.9462.1612.0	BEARING	103	33
CM+9.9462.1612.0	BEARING	107	33
CM+9.9462.1612.0	BEARING	111	31
CM+9.9462.1620.0	ROLLER ASSEMBLY	103	34
CM+9.9462.1880.0	CROSS-FLOW BLOWER 230V / 50HZ	117	02
CM+9.9462.2566.0	CABLE UL	93	29
CM+9.9462.2685.0	CROSS-FLOW BLOWER 230V / 50HZ	117	04
CM+9.9462.2720.0	LATCH	107	41
CM+9.9462.4180.0	CROSS-FLOW BLOWER 120V / 60HZ	117	02
CM+9.9462.4315.2	110V / 630W UL IR LAMP	119	13
CM+9.9462.4566.0	CABLE UL	93	31
CM+9.9462.4685.0	CROSS-FLOW BLOWER 120V / 60HZ	117	04
CM+9.9462.6082.0	BOTTLE	93	22
CM+9.9462.6101.0	LEG	93	35
CM+9.9462.6210.0	TANK COVER	103	35
CM+9.9462.6210.0	TANK COVER	107	34
CM+9.9462.6210.0	TANK COVER ASSEMBLY	111	32
CM+9.9462.6220.1	ROLLER	101	07
CM+9.9462.6220.1	ROLLER	103	36
CM+9.9462.6220.1	ROLLER	107	35
CM+9.9462.6220.1	ROLLER	111	33
CM+9.9462.6310.0	ROLLER ASSEMBLY	107	36
CM+9.9462.6310.0	ROLLER ASSEMBLY	111	34
CM+9.9462.6320.2	ROLLER	101	08
CM+9.9462.6320.2	ROLLER	107	37

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CM+9.9462.6320.2	ROLLER	111	35
CM+9.9462.6360.2	ROLLER	101	09
CM+9.9462.6360.2	ROLLER	107	38
CM+9.9462.6360.2	ROLLER	111	36
CM+9.9462.6901.1	BEARING PLATE	115	07
CM+9.9462.6902.1	BEARING PLATE	115	08
CM+9.9462.6903.0	ROD	115	09
CM+9.9462.9110.0	PUMP	105	40
CM+9.9462.9130.0	PUMP (OPTION)	113	41
CM+9.9463.1042.0	DEVICE COVER	93	38
CM+9.9463.1062.0	DRYER COVER	93	33
CM+9.9463.1072.0	PROCESSOR COVER	93	39
CM+9.9463.1090.0	FEED TABLE	93	27
CM+9.9463.1120.0	CHASSIS	93	36
CM+9.9463.1201.0	COVER	121	18
CM+9.9463.1205.0	CLAMP	121	09
CM+9.9463.1211.0	COVER	121	21
CM+9.9463.1220.1	PLATE ASSEMBLY	121	19
CM+9.9463.1240.1	PLATE ASSEMBLY	121	20
CM+9.9463.1250.0	ROLLER	101	01
CM+9.9463.1250.0	ROLLER	121	07
CM+9.9463.1260.0	ROLLER ASSEMBLY	121	06
CM+9.9463.1301.0	RUBBER SLEEVE	97	21
CM+9.9463.1302.0	MOUNTING BRACKET	97	22
CM+9.9463.1305.0	ROLLER	97	07
CM+9.9463.1320.0	DRIVE PLATE	97	23
CM+9.9463.1320.0	DRIVE PLATE	99	20
CM+9.9463.1330.1	CLAMPING PLATE	97	29
CM+9.9463.1350.0	MOTOR (24V)	97	16
CM+9.9463.1380.0	SWITCH ENCLOSURE	97	28
CM+9.9463.1381.0	SWITCH ENCLOSURE	97	26
CM+9.9463.1400.0	EXIT TRAY	93	34
CM+9.9463.1451.0	BOTTOM PART	95	08
CM+9.9463.1460.0	COVER WELDED	95	06
CM+9.9463.1551.0	REPLENISHMENT PUMP BODY	105	38
CM+9.9463.1661.0	REPLENISHMENT PUMP BODY	107	40
CM+9.9463.1751.0	REPLENISHMENT PUMP BODY	111	38
CM+9.9463.1900.0	HEATER 230V / 50HZ	107	31
CM+9.9463.1900.0	HEATER 230V/50HZ	103	31
CM+9.9463.1930.0	ELECTRONIC HEATER 120V/60HZ	103	31
CM+9.9463.1950.0	ELECTRONIC HEATER 230V/50HZ	103	31

Part code	Description	Page	Item
CM+9.9463.2050.0	CROSS-FLOW BLOWER 230V / 50HZ	117	03
CM+9.9463.2070.0	CROSS-FLOW BLOWER 120V / 60HZ	117	03
CM+9.9463.2110.0	TANK	103	19
CM+9.9463.2110.0	TANK	107	19
CM+9.9463.2310.0	TANK	111	19
CM+9.9463.2567.0	EPROM V 1102 for type 205/845	95	09
CM+9.9463.2817.0	EPROM V 1101 for type 285 (230 V 60 Hz)		
CM+9.9463.2950.0	SCANNING ROLLER	93	30
CM+9.9463.9010.2	BOTTOM PART PREASS	95	07
CM+9462.9120.0	PUMP (OPTION)	109	43

Standardised parts list

Item Nr.	Part Code	Description	1st Page
D6	CM+6.0095.523.00	CHEESE HEAD SCREW Din84-M3x6	118
D7	CM+6.0095.524.00	CHEESE HEAD SCREW Din84-M3x10	102
D9	CM+6.0096.420.00	WASHER Din125-A-4.3	116
D39	CM+6.0200.439.00	CYLINDRICAL PIN Din7-2h8x12	120
D44	CM+6.0200.449.00	CYLINDRICAL PIN Din7-2.5h8x16	98
D55	CM+6.0202.110.00	CHEESE HEAD SCREW Din84-M4x10	114
D81	CM+6.0205.447.00	SPRING WASHER Din127-B-3	118
D82	CM+6.0205.449.00	SPRING WASHER Din127-B-4	92
D94	CM+6.0207.213.00	HEXAGON NUT Din439-B-M3	118
D95	CM+6.0207.214.00	HEXAGON NUT Din439-B-M4	92
D134	CM+6.0215.620.00	HEXAGON HEAD SCREW Din933-M4X10	96
D142	CM+6.0215.708.00	HEXAGON NUT Din934-A-M4	98
D151	CM+6.0219.114.00	TAPER GROOVED PIN Din1475-2x12	98
D195	CM+6.0227.510.00	WASHER Din9021-4.3	96
D218	CM+6.0237.241.00	COUNTERSUNK HD SCREW Din963-M4x8	92
D244	CM+6.0244.007.00	GROOV.FILL.HD SCREW WN10018-2.9x9.5	96
D247	CM+6.0244.024.00	GROOV.FILL.HD SCREW WN10018-2.9x13	92
D251	CM+6.0250.004.00	COUNTERSUNK HD SCREW Din965-M3x6	118
D759	CM+7.0326.8620.0	WASHER 6.1x12x1	102
D800	CM+7.0329.5200.0	WASHER 6.1x12x0.5	92
D2211	CM+6.0215.589.00	HEXAGON HEAD SCREW Din933-M6X55	92
D2320	CM+6.0225.022.00	FILLISTER HEAD SCREW Din7985-M4x10	120
D2321	CM+6.0225.027.00	FILLISTER HEAD SCREW Din7985-M4x16	96
D2323	CM+6.0225.045.00	FILLISTER HEAD SCREW Din7985-M3x30	98
D2348	CM+6.0236.753.00	CLAMPING SLEEVE Din1481-2x20	102
D2388	CM+6.0243.853.00	SPIRAL PIN Din7343-2x12	96
D2412	CM+6.0250.075.00	COUNTERSUNK HD SCREW Din965-M3x10	92
D4009	CM+7.0214.038.00	FILLISTER HEAD SCREW Din7985-M4x20	116

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